oventrop

Valves, controls + systems

EN

"R-Tronic RT B / RTF B / RTFC K"
Wireless receiver "R-Con"

Installation and operating instructions

"R-Tronic"

Climate display device/control

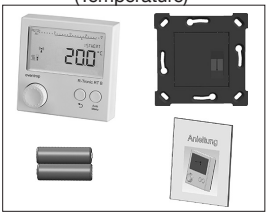
CE

Extent of supply

"R-Tronic" + "R-Con"

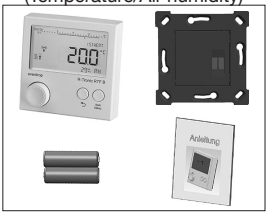
Thank you for purchasing this wireless thermostat with wireless receiver for temperature control of surface heating systems. Please check the delivery for completeness. It consists of the following components (depending on the ordered model):

"R-Tronic RT B"
(Temperature)



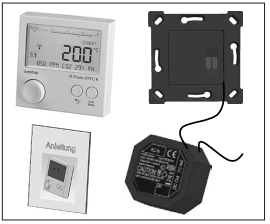
Battery operation (Item no.: 1150680)

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



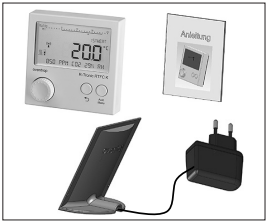
Battery operation (Item no.: 1150681)

"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)



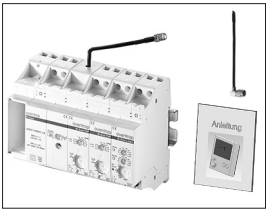
Mains adaptor with table stand (Item no.: 1150684)

"R-Con" 4 channel wireless receiver with logic module (Item no.: 1150770)

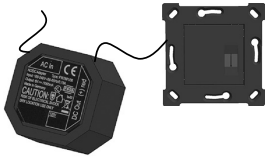
"R-Con" 4 channel wireless receiver without logic module (Item no.: 1150771)

"R-Con" 8 channel wireless receiver with logic module (Item no.: 1150772)

"R-Con" 8 channel wireless receiver without logic module (Item no.: 1150773)



Accessories wireless thermostat "R-Tronic":



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

optional for the models:
"R-Tronic RT B" / "RTF B"

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

optional for the models:
"R-Tronic RT B" / "RTF B"

Accessories wireless receiver "R-Con":

Aktor T 2P 230 V AC or 24 V DC
Valve connection M 30 x 1.5
(Item no.: 1012415 / 1012416)

Wireless repeater RP-C F
(signal amplification,
flush mounting, 230 V/50 Hz)
(Item no.: 1153060)

Wireless repeater RP-S F
(signal amplification, operation in earthed socket; Item no.: 1150699)

Content "R-Tronic" + "R-Con"

1. General information

These installation and operating instructions refer to the different models of the Oventrop climate display device/control "R-Tronic" and the associated wireless receiver "R-Con".

The installation and operating instructions which are intended for installers and final consumers, serve to install the wireless thermostats "R-Tronic RT B", "R-Tronic RTF B" and "R-Tronic RTFC K" and the wireless receiver "R-Con" 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 climate display device/control "R-Tronic" and the wireless receiver "R-Con". This will allow an (energy) efficient use of the products.

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

Please complete the handover report supplied with the product.

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

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

Manufacturer and contact

Oventrop GmbH & Co. KG
Paul-Oventrop-Straße 1
D-59939 Olsberg, Germany

Technical Support

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Fax: +49 (0) 29 62 82-602
Mobile box: +49 (0) 29 62 82-333
E-mail: hotline@oventrop.de

NOTE regarding storage and packaging

The following instructions regarding storage of the climate display device/ control "R-Tronic", wireless receiver "R-Con" 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.

2. Safety notes

2.1 Intended use

The wireless thermostat "R-Tronic" and wireless receiver "R-Con" are used for the wireless temperature control of rooms with surface heating circuits. The wireless thermostats "R-Tronic" are not only used for menu navigation and setting of heating programmes but temperature, air humidity and CO2 values (depending on the model) are also displayed.

Safety in operation is only guaranteed if the wireless thermostats "R-Tronic" and the wireless receiver "R-Con" are used correctly. Please observe that only Oventrop accessories (power packs etc.) must be installed. Any use of the wireless thermostats "R-Tronic RT B", "RTF B", "RTFC K" and the wireless receiver "R-Con" outside the above applications will be considered as non-compliant and misuse.

2.2 Residual risks and fundamental dangers

Even though the product combination "R-Tronic + R-Con" 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 of the "R-Tronic" has to be connected to the 230 V network. Connection must only be carried out by a qualified electrician. Switch off the current supply before cabling! Avoid dangers from electricity!
- The occupational health and accident prevention regulations must be observed during installation.
- Distributor/collector components for surface heating systems may present a risk of scalding (hot surfaces, hot water). Avoid mechanical risks and risk of fire.
- The wireless thermostat and wireless receiver 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).
- Please observe that excessive room temperatures may cause health problems (cardiovascular problems or similar).
- Please avoid any contact with the products if allergies against the used material are known.
- Avoid frost damages caused by too low flow temperatures.

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 Z536.6.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

Signal warning (without a 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 which also emit electromagnetic fields.

Please observe that special regulations and standards apply for the medical sector (such as hospitals). The wireless thermostat "R-Tronic" with the wireless receiver "R-Con" is not suitable for use in the medical sector.

3. Product description

3.1 Summary

The wireless thermostat "R-Tronic" and wireless receiver "R-Con" are used for the programmable temperature control of rooms with surface heating circuits. The radio communication between the "R-Tronic" and "R-Con" is wireless. One wireless thermostat may communicate with the wireless receiver via a maximum of 8 channels (mains operation).

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). The wireless thermostats requires a 230 V alternating voltage.

"R-Tronic" models:

- **"R-Tronic RT B":**
  Temperature display and programmable **temperature control**, battery operation 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 display, programmable **temperature control** and **air humidity measurement**, battery operation 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 display, programmable **temperature control** and **air humidity and CO2 measurement** powered by a flush-mounted power pack or a mains adaptor by default.
- **"R-Con" 8 channel wireless receiver with logic module:**
  Control of 8 independent heating circuits (a maximum of 32 actuators 230 V or 24 V can be connected to the distributor/collector for surface heating, a maximum of 32 heating circuits may thus be controlled). The number of channels can be increased by extending the wireless receiver by further control modules.

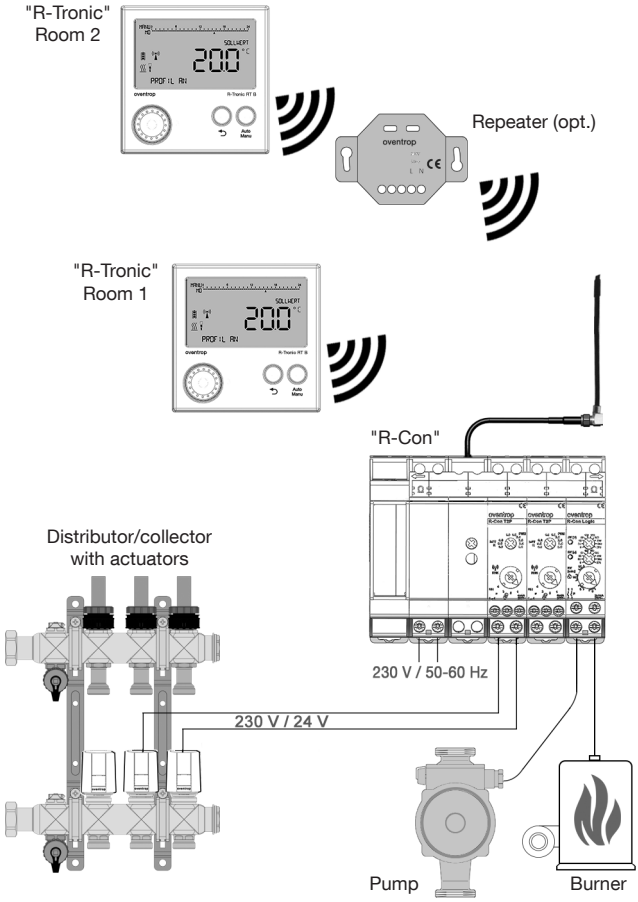
  Integrated burner logic for heat demand to a boiler.

  Integrated pump logic with adjustable lead time and follow-up time.

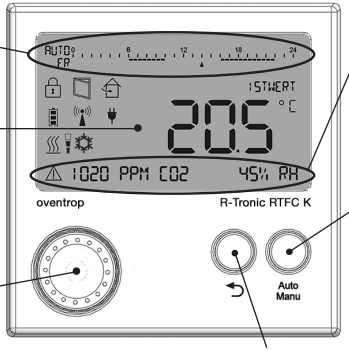
  Depending on the spatial conditions, an antenna extension for improvement of reception and/or a repeater (item no. 1153060 / 1150699) for amplification of the "R-Tronic" radio signals are used.

(Illustration 1)

Application showing the wireless receiver with wireless thermostats "R-Tronic" and heating system (exemplary sketch):



(Illustration 2)



Operating mode and **time profile**

Display: Symbols and display units

Text line supplies information on:
-Measured values
-Menu structure
-Diagnostic (error/advice)

Auto/Manu button: Switching between the standard heating profiles

Menu-button: Navigation and nominal setting by turning (to the left/right) and pressing for confirmation

Return-button: Previous menu level; keep pressed for 3 seconds: return to **default view**

Operating mode and time profile *(above display):*

Operation mode AUTO/MANU

Day of the week

Time

Setting of comfort temperature

NOTE regarding display lighting:

The display lighting of the battery operated "R-Tronic" models (RT B / RTF B) is deactivated by default. Activation of the display lighting is described under paragraph 5.4.8.

The display lighting of the mains operated "R-Tronic RTFC K" is activated by pressing one of the three buttons.

Explanation of "R-Tronic" display symbols:

Child-proof lock activated

Window open (sensor controlled)

Recommendation for room ventilation (only "R-Tronic RTFC K"

Battery status (fully charged, low, empty)

Wireless control active (at least) one "teached in" channel

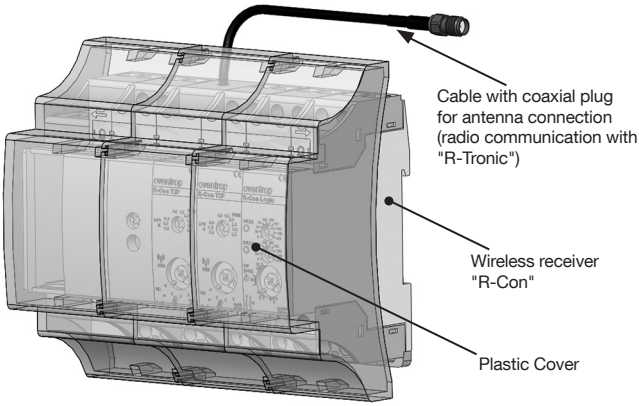
Current supply via **external power pack**

Heating period active

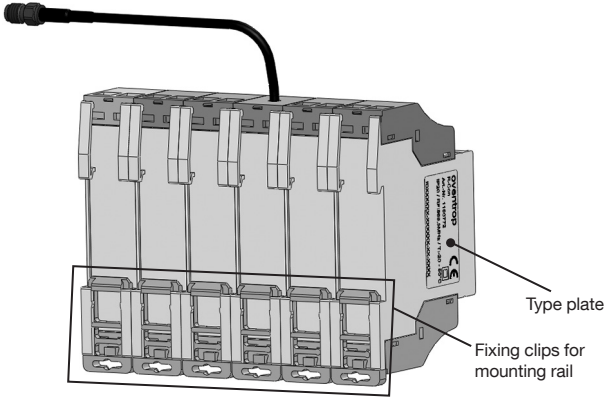
Cooling active -in preparation-

Display of **notes** and **error messages**

Front view of wireless receiver "R-Con": (Illustration 3)

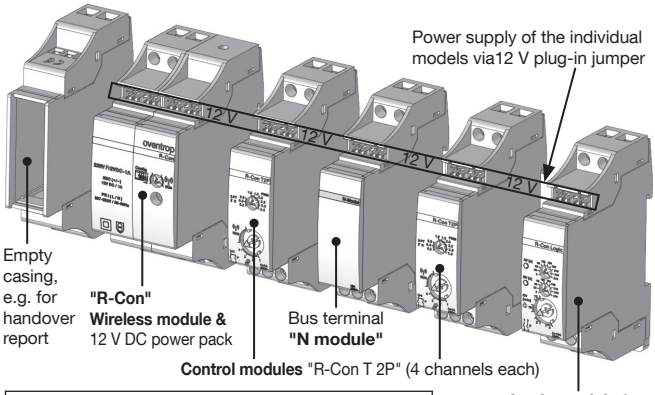


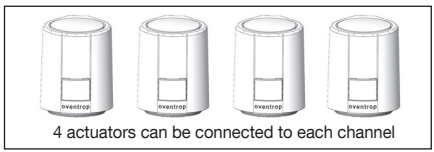
Rear view of wireless receiver "R-Con": (Illustration 4)



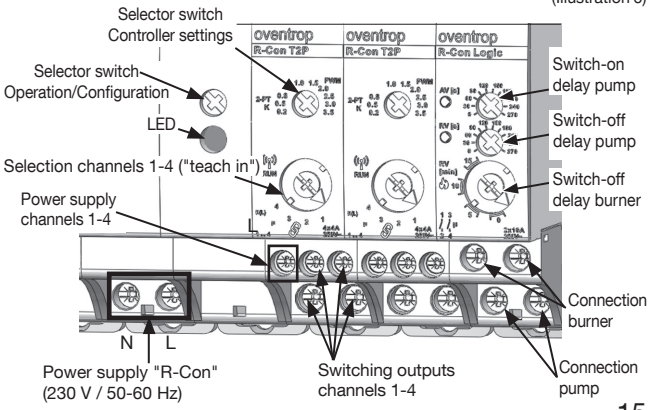
Summary "R-Con" 8 channel system with logic module:

(Illustration 5)





(Illustration 6)



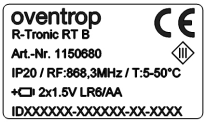
3.2 Technical data

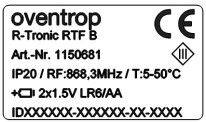
"R-Tronic RT B / RTF B / RTFC K"

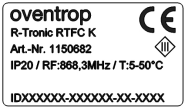
Power supply:	"RTFC K" with external power pack (100-240 V / 50-60 Hz) "RT B", "RTF B" battery operated (AA 1.5 V, Mignon LR6), optional mains operation
Display:	LC-Display
Radio frequency:	868.3MHz
Transmitting power max.:	10 mW
Radio range within building:	Depending on materials and interference sources
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
Measuring range T (°C):	+0 °C up to +50 °C
Accuracy at +25 °C:	± 1 K
Measuring range RH (%):	0 up to 100 % RH, only for "RTF B" and "RTFC K"
Accuracy at +25 °C and 20-80% RH:	± 4,5% RH
Measuring range CO2 (PPM):	0 up to 2000 PPM, only for "RTFC K"
Accuracy at 25 °C and 1013 mbar:	< ± 50 PPM +2% of measured value
Temperature dependence:	typ. 2 PPM CO2/°C (0…50 PPM)
Long-term stability:	typ. 20 PPM/a
Casing:	ABS (ASA), traffic white similar to RAL 9016
Casing dimensions:	85 x 85 x 35 mm (W x H x D)

Subject to technical modification without notice!

Type plates





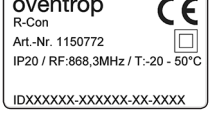


"R-Con" Bidirectional wireless module

Interfaces:	RS 485 bus
Radio frequency:	868 MHz
Transmitting power max.:	10 mW
Radio range within building:	Depending on materials and interference sources
Power supply:	230V / 50-60Hz
Secondary supply:	12V DC-1A (RS 485 Bus)
Stand-by loss:	1 Watt
Ambient temperature:	-20 °C up to +50 °C
Storage temperature:	-25 °C up to +70 °C
Casing:	Plastic, pure white RAL 9003, for installation on mounting rail DIN EN 60715 TH35
Dimensions (H x W x D):	82 x 36 x 58 mm

"R-Con T 2P" Control module heating and cooling

Interfaces:	RS485 bus
Supply voltage:	12V DC
Contact:	4 closing contacts (4A/250 V AC) isolated from the supply voltage
Number of radio channels:	4 Connection of a maximum of 16 actuators (4 actuators per channel)
Temperature control:	Pulse-width modulation (PWM) Two point control (2-PT)
Stand-by-loss:	0,1 Watt
Casing:	Plastic, pure white RAL 9003, for installation on mounting rail DIN EN 60715 TH35
Dimensions (H x W x D):	82 x 18 x 58 mm



"R-Con Logic" Logic module

Interfaces:	RS485 bus
Supply Voltage:	12V DC
Connections:	Pump connection, burner connection
Switching voltage:	max. 250 V / 0-60 Hz (per closing contact)
Switching current:	10A (per closing contact)
Contacts:	2 closing contacts volt free 10 A / 250 V AC
Stand-by-loss:	0,1 - 0,6 Watt
Casing:	Plastic, pure white RAL 9003, for installation on mounting rail DIN-EN 60715 TH35
Dimensions (H x W x D):	82 x 18 x 58 mm

3.3 Note regarding declaration of conformity

The company Oventrop GmbH & Co. KG hereby declares that the climate display device/control "R-Tronic" and the wireless receiver "R-Con" 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 "R-Tronic" should be mounted onto an inner wall or a pillar at a height of 140 cm to 170 cm. Please make sure that the wireless thermostat is not affected by other heat sources (such as sunlight or heating devices next to it).

The wireless thermostat 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 and should not be covered.

The communication between the "R-Tronic" and the receiver "R-Con" is radio-based. Please observe that 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 in-stance behind metal objects, may develop.

Reduction of radio range compared with an unobstructed visual contact:

Material	**Radio range reduction**
Wood, gypsum, uncoated glass	0 - 10%
Brickwork, wooden or gypsum walls or walls made of press boards	5 - 35%
Armoured concrete	10 - 90%
Metal	up to 100%

Note regarding radio communication between "R-Tronic" and wireless receiver "R-Con"

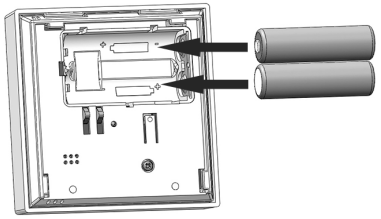
It might therefore become necessary to **re-position the wireless thermostat** to guarantee an uninterrupted radio communication to the receiver "R-Con". Alternatively, technical measures, such as the use of an antenna extension at the wireless receiver or of a wireless repeater might become necessary. For more detailed information see paragraph 4.6.

4.2 Wall attachment of the 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 adaptor with table stand (available as accessories). The "R-Tronic RTFC K" is always operated with a flush-mounted power pack or a mains adaptor.

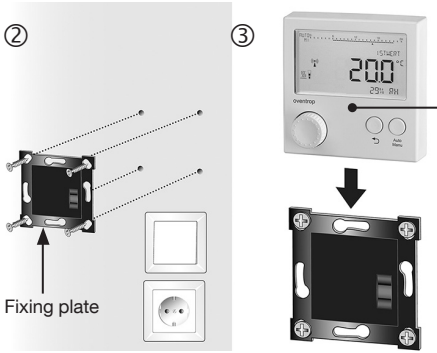
If the "R-Tronic" models "RT B" and "RTF B" shall be used for battery operation, i.e. for standard operation, please proceed as follows:

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



(Illustration 7)

2. Screw the supplied fixing plate horizontally onto the wall.
3. Insert the wireless thermostat into the fixing plate from the top.



(Illustration 8)

"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 of the fixing plate with flush-mounted power pack ("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 could be a risk of an electric shock.

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

⚠ CAUTION

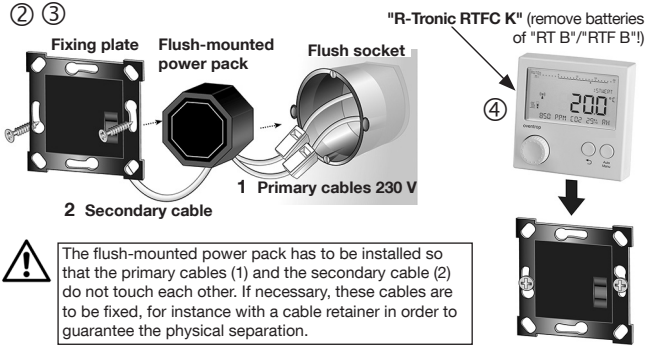
Risk of fire due to overcharging of the batteries!

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

➔ The wireless thermostat must never be equipped with batteries when using the flush-mounted power pack.

1. **Switch off the 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 and switch on the current supply.
4. Insert the "R-Tronic" into the fixing plate from the top.

(Illustration 9)



⚠ The flush-mounted power pack has to be installed so that the primary cables (1) and the secondary cable (2) do not touch each other. If necessary, these cables are to be fixed, for instance with a cable retainer in order to guarantee the physical separation.

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

4.4 Installation with table stand and mains adaptor ("RTFC K")

CAUTION

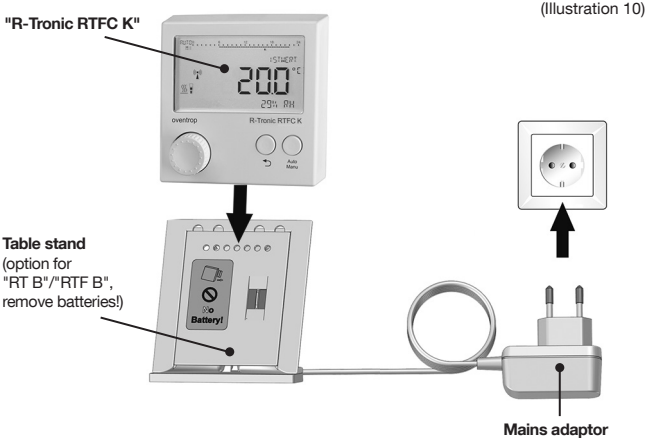
Risk of fire due to overcharging of the batteries!

There is a risk of overcharging of the batteries if the "R-Tronic" is equipped with batteries and is connected to the 230 V network via the table stand (types "RT B" and "RTF B").

➔ The wireless thermostat 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 an earthed socket (100-240 V ~/50-60 Hz).
2. Insert the "R-Tronic" into the table stand from the top.

(Illustration 10)



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

NOTE

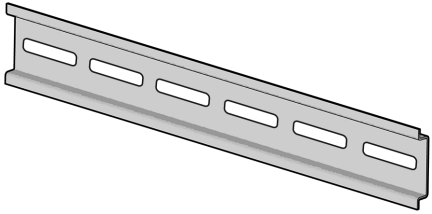
The "R-Tronic" is removed by pulling it vertically upward out of the table stand.

4.5 Installation and operation of the wireless receiver

4.5.1 Fixing of the wireless receiver "R-Con" to the mounting rail

A **mounting rail according to DIN EN 60715** mounted onto a wall or in a cabinet (surface-mounted/flush-mounted) is paramount for the installation of the wireless receiver "R-Con":

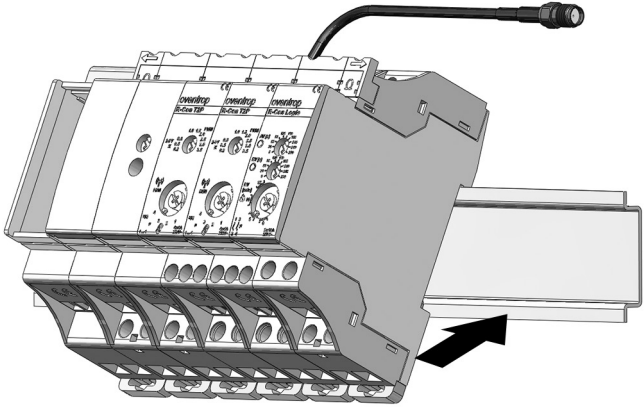
(Illustration 11)



1. Place the "R-Con" into the upper edge of the mounting rail.
2. Push the wireless receiver against the mounting rail until it clicks into position.

▶ The wireless receiver "R-Con" is now fixed to the mounting rail.

(Illustration 12)

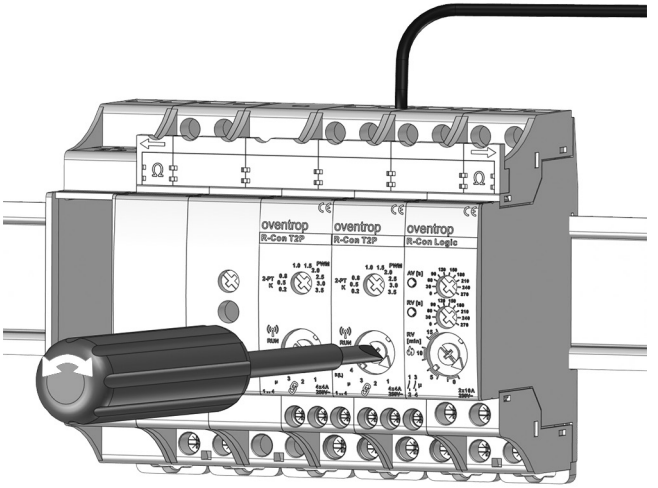


4.5.2 Operation of the rotary switches at the wireless receiver

All settings at the wireless receiver "R-Con" are carried out with the help of rotary switches which are recessed into the casing of the module to prevent tampering.

It is recommended to carry out all settings (see below) at the rotary switches with the help of a slot screwdriver (approx. profile 4-5 mm) as the operating elements feature a corresponding notch.

(Illustration 13)



4.5.3 Electrical connection of the "R-Con" with actuators

DANGER

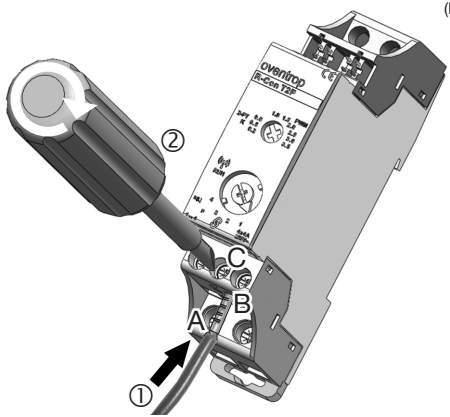
Risk of electric shock!

There is a risk of an electric shock if the wireless receiver is connected to the 230 V network before having wired it up with the actuators.

- ➔ Connect the wireless receiver to the 230 V network at the end, i.e. after having carried out all cabling.
- ➔ Before cabling the actuators, **ensure that the wireless receiver is disconnected from the power supply.**
- ➔ If the wireless receiver is energized, disconnect it from the power supply.
- ➔ Installation of the wireless receiver and all cabling must only be carried out by a **qualified electrician**.

For the connection of an actuator to a control module, **the end or the sleeve of the cable (A)** of the actuator is inserted into a **terminal screw (B)** of the module from below and is fixed with the **front screw (C)**.

(Illustration 14)

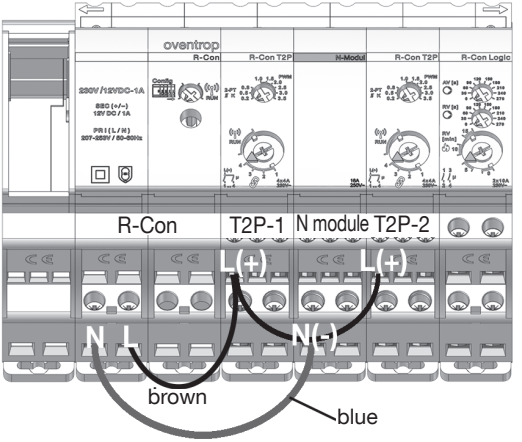


Installation of supplied cable bridges (brown/blue) (230 V)

The supplied **cable bridges** must be **installed** before carrying out cabling of electrothermal actuators. **The following components must be connected:**

- **R-Con** N to **N module** N(-) **blue** cable bridge (not for 24V!)
- **R-Con** L to **T 2P-1** L(+) **brown** cable bridge (not for 24V!)
- **T 2P-1** L(+) to **T 2P-2** (L+) **brown** cable bridge

(Illustr 15)



The corresponding actuator of each heating circuit has to be connected to one of the channels of the T 2P module. A maximum of four actuators can be connected to each of the four channels in parallel.

NOTE

Before connecting actuators to the wireless receiver, it should be specified which rooms shall have a **pulse-width modulated** (PWM) or **two point control** as the settings of all four channels of the regulating module have to be identical (either PWM **or** two point).
Further information can be found under paragraph 4.7.1.

Cabling of electrothermal actuators 230 V / 50-60 Hz:

DANGER
Ensure that the "R-Con" unit is disconnected from the power supply!

CAUTION
During operating conditions, there is a risk of scalding at the distributor/ collector!

1. Connect the neutral conductor N of the "R-Con" module to the N module N(-) by using the blue cable bridge (see illustr. 15).
2. Connect the L conductor of the "R-Con" module to the terminal screw L(+) of a T 2P control module (brown cable bridge).
3. Connect the existing T 2P control modules L(+) with one another by using the brown cable bridge (see illustr. 15).
4. Connect the **brown core (2)** of the two-core cable of each actuator **(1)** to one of the **terminal screws** of a T 2P control module (see illustr. 16).
5. Connect the **free blue cores of the cables (3)** to a free terminal screw of the **N module** (see illustr. 16).

▶ The actuators are cabled.

Cabling of electrothermal actuators 24 V AC/DC 0-60 Hz with external power supply:

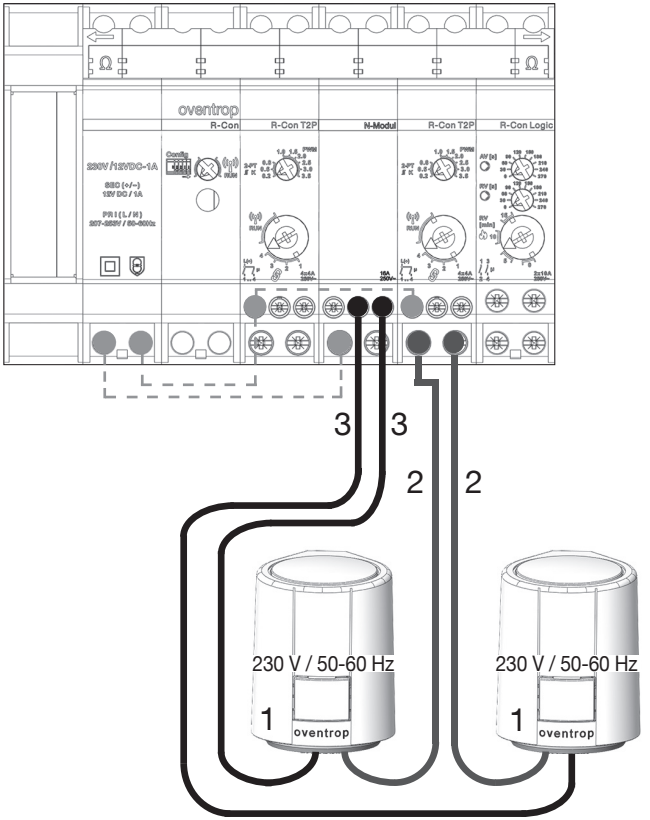
1. Connect the negative terminal (power pack) or the 0 V connection (transformer) to the N module N(-) (illustr. 17).
2. Connect the positive terminal (power pack) or the 24 V connection (transformer) to the terminal screw L(+) of a T 2P control module (see illustr. 17).
3. Connect the existing T 2P control modules L(+) with one another by using the brown cable bridge (see illustr. 15).
4. Connect the **brown core (2)** of the two-core cable of each actuator **(1)** to one of the **terminal screws** of a T 2P control module (see illustr.17).
5. Connect the **free blue cores of the cables (3)** to a free terminal screw of the **N module** (see illustr. 17).

▶ The actuators are cabled.

NOTE

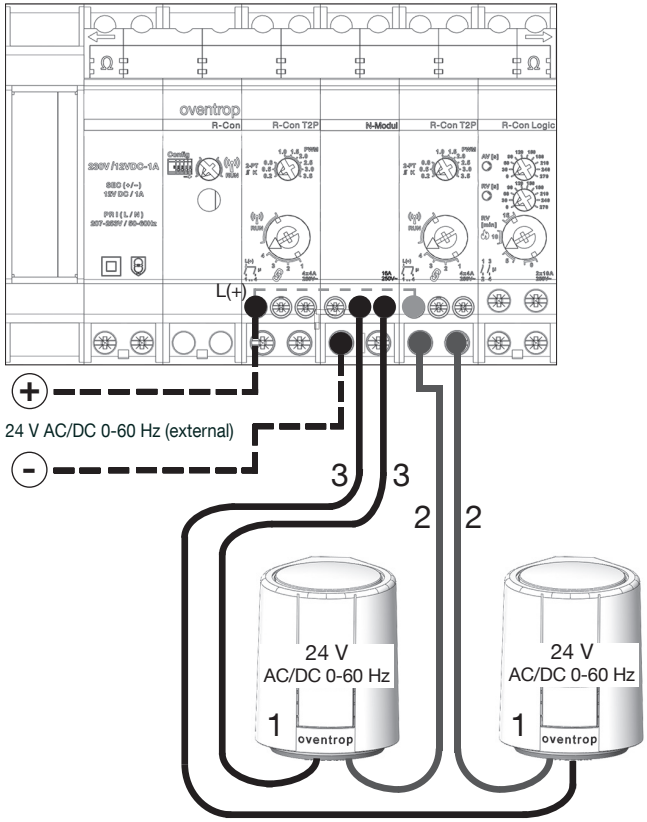
If the logic module for pump and burner control shall not be used, please proceed with paragraph 4.5.6 "Connection of the wireless receiver to the 230 V network".

(Illustration 16)



Connection of the wireless receiver to the 230 V network: see paragraph 4.5.6

(Illustration 17)



Connection of the wireless receiver to the 230 V network: see paragraph 4.5.6

4.5.4 Extension of the wireless receiver by further modules

DANGER

Risk of electric shock!

There is a risk of an electric shock if the wireless receiver has already been connected to the 230 V network at this stage.

➔ If the wireless receiver is energized, **disconnect it from the power supply**.

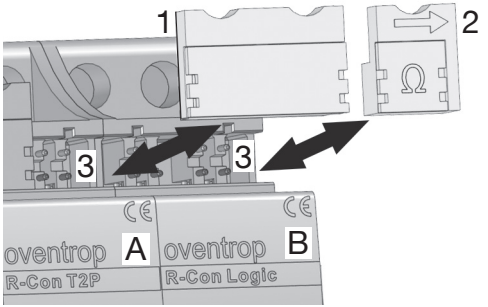
➔ Before connecting further modules to the wireless receiver, **ensure** that the wireless receiver is disconnected from the power supply.

➔ All cabling must only be carried out by a qualified electrician.

The wireless receiver "R-Con" (item No. 1150772 / 1150773) features two control modules, each with four channels. If more than eight channels are required, further control modules "T 2P" can be connected as follows:

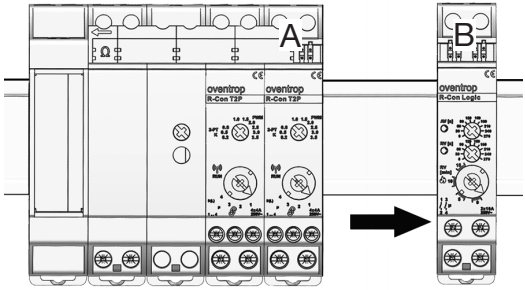
1. Release the **12 V plug-in jumper (1)** connecting the modules between which the new unit shall be placed. The control module **(A)** on the right hand side and the logic module **(B)** are connected in illustration 18.
2. Remove **the end piece (2)** marked **Ω**. It is recommended to release the plug-in jumpers by carefully pulling them forward.

(illustration 18)



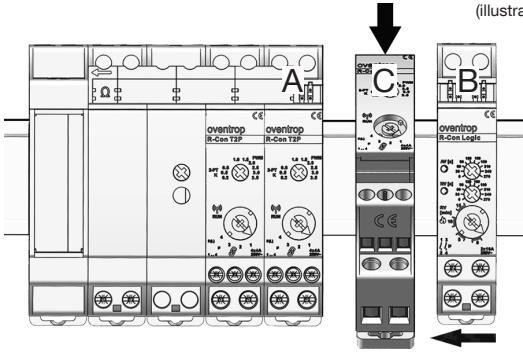
3. Push the **logic module (B)** which can now be moved freely on the mounting rail, to the right to create space for the extension module (see illustration 19).

(illustration 19)



4. Place the **extension module (C)** into the upper edge of the mounting rail and push it against the rail until it clicks into position.

(illustration 20)



5. Push module B to the left until it is flush with the new module C.
6. Mount all **12 V plug-in jumpers (1)** onto the free **terminal blocks (3)** to connect the modules. The end piece (2) is fitted on the very right hand side (see illustration 18).

▶ A further control module is connected to the wireless receiver.

NOTE

The wireless receiver must be reconfigured when extending it by new models.

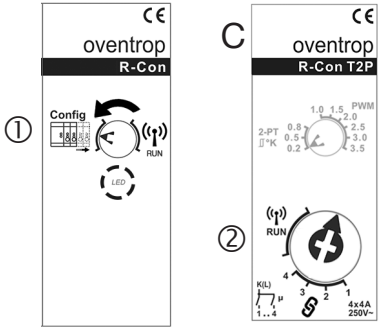
The **newly installed module C is not yet ready to operate** after connection of the wireless receiver to the 230 V network (see paragraph 4.5.6). It first has to be detected by the wireless receiver.

1. Starting from its normal position (radio symbol), turn the **rotary switch of the wireless module** counter clockwise to **"Config"** (LED flashes constantly).
2. Turn the **lower rotary switch of the new control module "T 2P" (C)** clockwise until stop. Detection of the new module is indicated by a short **green flashing** of the LED of the wireless module.
   If further modules have been added to the wireless receiver before, step 2 has to be repeated at each new module.

   Finally, turn the lower rotary switch back to **RUN**.
3. Set the **switch of the wireless module** back to its normal position (**radio symbol/RUN**) by turning it clockwise.

▶ The new control module was put into operation successfully.

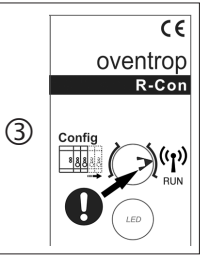
(illustration 21)



NOTE

The rotary switch of the wireless modules has to be set back to its normal position after each reconfiguration (step 3).

The wireless receiver is only ready to operate if the rotary switch is set to the radio symbol.



4.5.5 Cabling of the logic module with burner and pump

DANGER

Risk of electric shock!

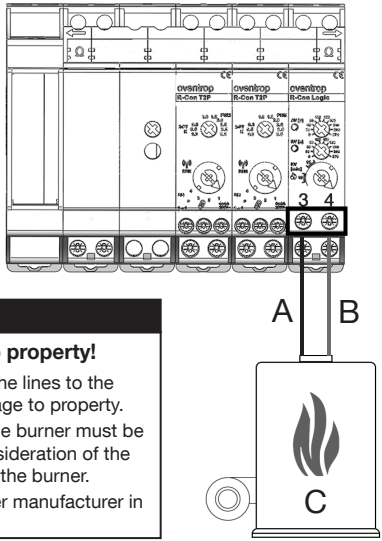
There is a risk of an electric shock if the wireless receiver has already been connected to the 230 V network at this stage.

- ➔ If the wireless receiver is energized, **disconnect it from the power supply**.
- ➔ Before cabling, **ensure** that the wireless receiver is disconnected from the power supply.
- ➔ Installation of the wireless receiver and cabling must only be carried out by a qualified electrician.

Release of the burner via signal line (volt free)

Connect the control lines (A and B) to the terminal screws 3 and 4 to release the burner (C).

(illustration 22)



NOTICE

Danger of damage to property!

Incorrect connection of the lines to the burner may lead to damage to property.

Cabling and release of the burner must be carried out with due consideration of the operating instructions of the burner.

Please contact the burner manufacturer in case of uncertainties.

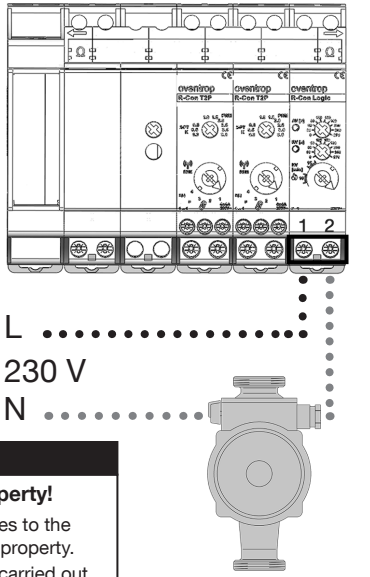
Cabling of the wireless receiver with the pump

Connect the pump of the heating water circuit working with a supply voltage of 230 V to the wireless receiver.

1. Connect the L conductor of the 230 V network to terminal screw 1 of the logic module.
2. Connect the L input of the pump to terminal screw 2 of the logic module.
3. Connect the N conductor of the 230 V network to the N input of the pump.

▶ The pump can now be switched via the wireless receiver.

(Illustration 23)



NOTICE

Danger of damage to property!

Incorrect connection of the lines to the pump may lead to damage to property.

Cabling of the pump must be carried out with due consideration of the operating instructions of the pump.

Please contact the pump manufacturer in case of uncertainties.

4.5.6 Connection of the wireless receiver to the 230 V network

DANGER

Risk of electric shock!

There is a risk of an electric shock when touching live cables.

➔ Connection of the wireless receiver to the 230 V network must only be carried out by a qualified electrician.

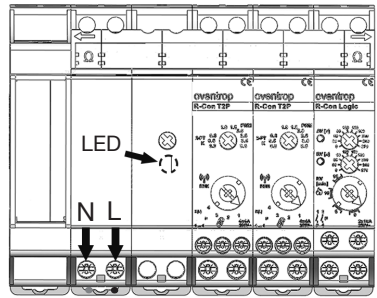
➔ The following **5 safety regulations** must be observed:

Disconnect; protect against accidental restart;
check that no voltage is present; earth and short-circuit;
cover adjacent, live parts.

1. Switch off the current supply.
2. Assemble the electrical connection between the wireless receiver and the electrical network by connecting the **L and N conductor of the 230 V connection** to the two **terminal screws of the wireless module** which are marked accordingly.
3. Switch on the current supply.

▶ The wireless receiver is connected to the power supply and the **LED** of the wireless module now flashes at irregular intervals.

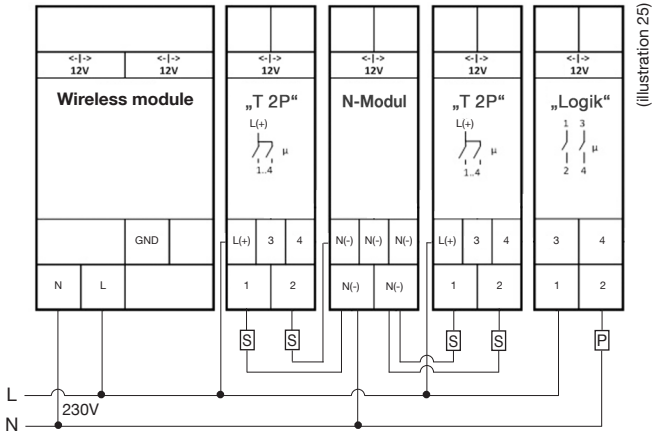
(illustration 24)

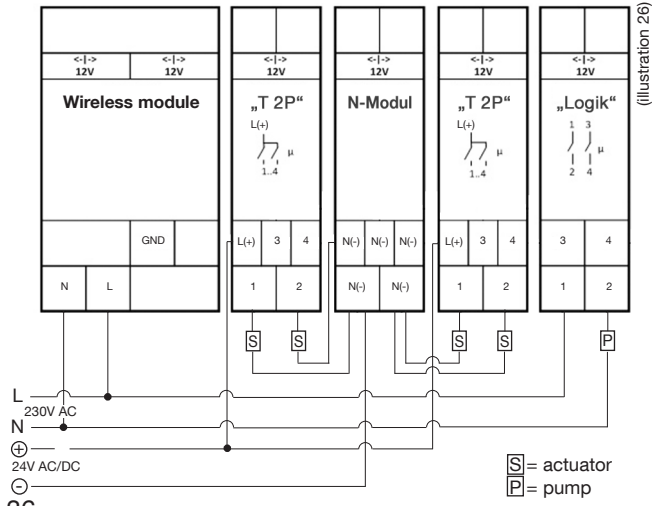


WARNING
Connection of an earthed plus is inadmissible!

L
230 V / 50-60 Hz
N

4.5.7 Summary connection diagram 230 V and 24 V



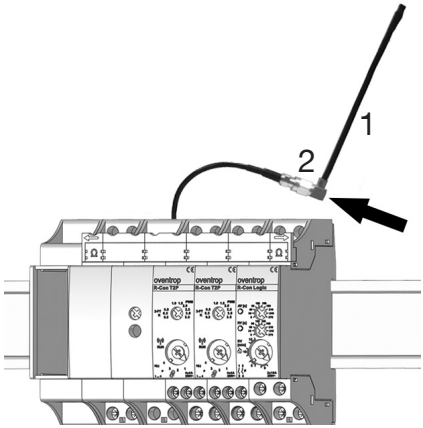


4.5.8 Use of antenna, extension and wireless repeater

A trouble-free radio communication between the wireless thermostat "R-Tronic" and the wireless receiver "R-Con" is of major importance. With the distance to the transmission units "R-Tronic" rising, the field strength of the radio signals which are electromagnetic waves, de-creases. Moreover, unfavourable materials in the direction of propagation of the radio signals can be a source of error (see also paragraph 4.1).

Screw the socket of the supplied **antenna (1)** to the **coaxial plug (2)** of the wireless receiver (remove red protection cap first). This way, reception of the "R-Con" is increased considerably.

(Illustration 27)



If reception is poor because of unfavourable spatial conditions or a radio communication cannot be created at all (see paragraph 4.6.2), the following technical measures can be taken:

- Use of an **antenna extension** (for SMA screw terminal):
  Improves reception of the wireless receiver and is used instead of the supplied antenna.
- Use of a **wireless repeater**: Amplifies the signals of the wireless thermostats "R-Tronic". A wireless repeater for flush-mounted installation is available as Oventrop accessory (item no. 1153060). The corresponding installation and operating instructions must be observed.

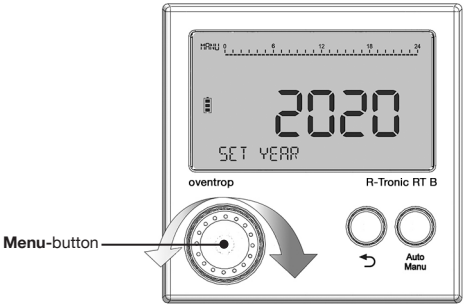
4.6 Creation of radio communication between "R-Tronic" and "R-Con"

After having connected the power supply, the channels of the "R-Con" have to be adapted to the existing wireless thermostats. The term **"teach in"** describes the creation of a **radio communication**.

4.6.1 Setting date and time at wireless thermostat "R-Tronic"

After having connected the wireless thermostat to the power supply, the setting routine for the date (year, month, day) and the current time (hours, minutes) will start automatically.

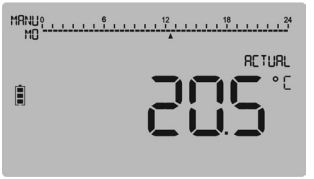
(Illustration 28)



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:

(Illustration 29)



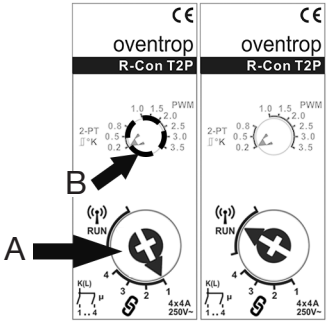
4.6.2 Adaptation of "R-Con" channels to "R-Tronic" ("teach in")

NOTE

During initial operation each channel of a control module "R-Con T 2P" has to be adapted to a wireless thermostat individually. Always carry out the "teach in" processes for the channels of **one** control module first. During the "teach in" processes of the channels of one module, the corresponding rotary switch of the other module (or the other modules) always has to be set to RUN.

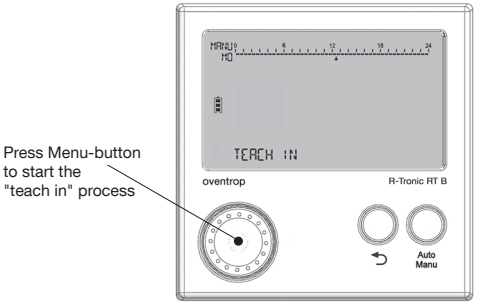
1. Select a channel that shall be adapted at the control module by turning the lower **rotary switch for the selection of the channels (A)** to the number of the required channel (for instance "channel 1" as shown in illustration 30). The red LED of the upper rotary switch for the **controller settings (B)** will flash at regular intervals of 2 seconds.

(Illustration 30)



2. Go to the main menu of the wireless thermostat ("R-Tronic") to which the selected channel shall be adapted by turning the Menu-button to the right or left until MAIN MENU will be displayed.
3. Press the Menu-button. TIME PROFILE will appear on the display. Turn the Menu-button to the right until SETTINGS will be indicated on the display.
4. Press the Menu-button. INSTALLATION will be displayed.
5. Press the Menu-button again. TEACH IN will appear on the display (see illustration 31). Press the menu-button again to start the "teach in" process. A running countdown of 30 seconds will be displayed.

(Illustration 31)



6. The message SUCCESSFUL which will shortly appear on the "R-Tronic" display signalizes that the "teach in" process has been completed successfully and the following **radio symbol** will be displayed:

The LED at the control module of the wireless receiver will glow red until the lower rotary switch is set back to RUN (see note below).

▶ Radio communication between "R-Tronic" and one "R-Con" channel was created.

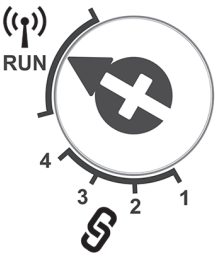
After about 3 seconds, the message SUCCESSFUL will be replaced by the message TEACH IN. To adapt another channel to the same wireless thermostat, turn the a.m. rotary switch to another channel (for instance "2") and start the "teach in" process in the "R-Tronic" menu as described in step 5. Up to 8 channels (mains operation) can be adapted to one wireless thermostat.

If the next channel shall be assigned to another wireless thermostat which is, for instance, installed in another room, perform steps 2 to 5.

NOTE

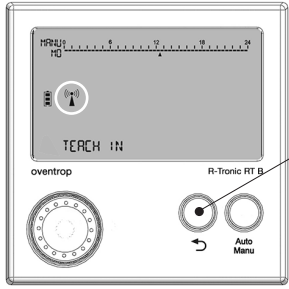
Once the "teach in" process of all channels cabled with the actuators has been completed successfully, the rotary **switch of the corresponding control module has to be set back to position RUN** (control operation).

Important: If the rotary switch is still set to one of the channels in the "teach in" section (chain symbol), a control operation is not possible. This can be a source of error.



If the radio symbol is displayed on the "R-Tronic", you may return directly from the submenu **TEACH IN** to the **default view** with the current room temperature by keeping the **Return-button pressed for about 3 seconds**. Set all wireless thermostats back to the default view after having "teached in" all "R-Con" channels successfully.

(Illustration 32)



NOTE of an unsuccessful "teach in" process:

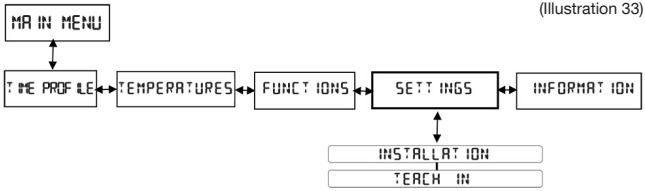
If you do not succeed in adapting the selected channel of the control module to the wireless thermostat (countdown expired before, no radio symbol), TEACH IN will be displayed on the "R-Tronic" again. The "teach in" process may be repeated now.

A further failure of the "teach in" process is most probably caused by a disturbed radio communication. In this case you should check:

- whether the wireless thermostat can be installed at a different location in the room.
- whether you have to take technical measures to increase the signal strength of the "R-Tronic" (f. ex. by means of a wireless repeater) or the receiving quality of the wireless receiver (antenna extension).

The tree structure illustrates the menu path for the "teach in" process:

(Illustration 33)



4.6.3 Termination of the radio communication ("teach out")

The radio communication between a wireless thermostat "R-Tronic" and a "R-Con" channel can be terminated via the command TEACH OUT. This might become necessary if, for instance, two channels were mistakenly adapted to one thermostat (see also illustration 35).

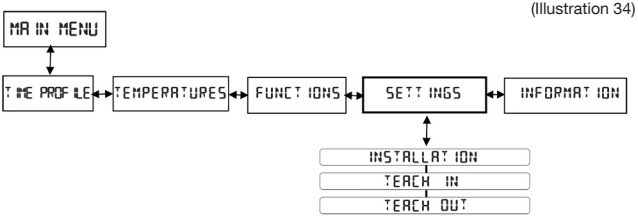
NOTE

The "teach out" process can only be carried out at the wireless thermostat to which the channel has been adapted before.

1. Select the channel that shall be "teached out" at the control module by turning the lower **rotary switch for the selection of the channels (A)** to the number of the corresponding channel (for instance "channel 1" as shown in illustration 30).
2. Go to the MAIN MENU of the "R-Tronic". After having pressed the Menu-button, you will reach the submenu TIME PROFILE again. The menu TEACH IN is reached via SETTINGS ▶ INSTALLATION.
3. 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. The message SUCCESSFUL which will shortly appear on the "R-Tronic" display signalizes that the "teach out" process has been completed successfully. Now the radio communication between the "R-Tronic" and the channel is interrupted. The message SUCCESSFUL will be replaced by the message TEACH OUT after about 3 seconds.
   If the radio communication between further channels and the "R-Tronic" shall be terminated, proceed as described above. The radio symbol will disappear if no further channels can be "teached out" and the communication with the control module was interrupted.

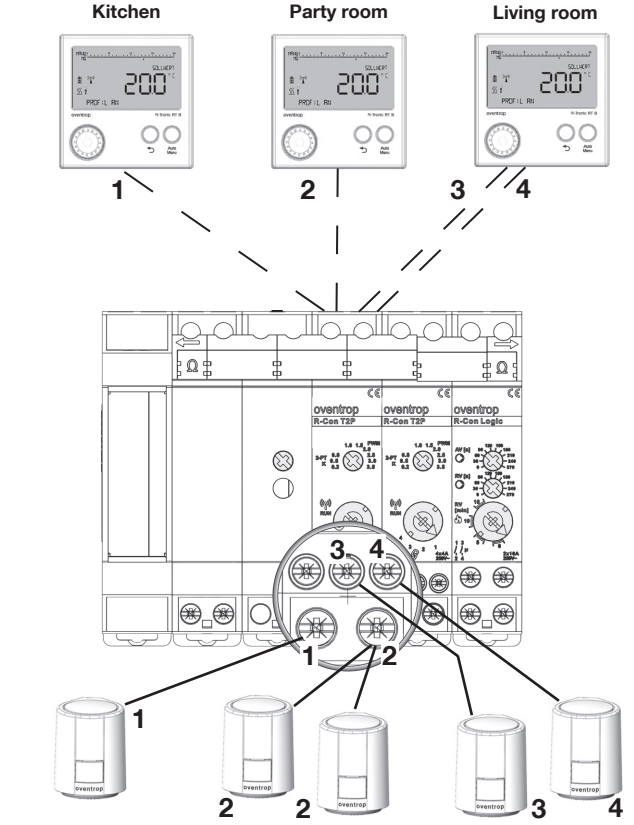
The tree structure illustrates the menu path for the "teach out" process:

(Illustration 34)



Exemplary channel assignments to the wireless thermostats "R-Tronic"

(Illustration 35)



1 actuator
1 "R-Con" channel
1 "R-Tronic"

2 actuators
1 "R-Con" channel
1 "R-Tronic"
(2 cables in a terminal screw)

2 actuators
2 "R-Con" channels
1 "R-Tronic"
(1 cable in a terminal screw)

4.6.4 Factory settings control module "R-Con T 2P"

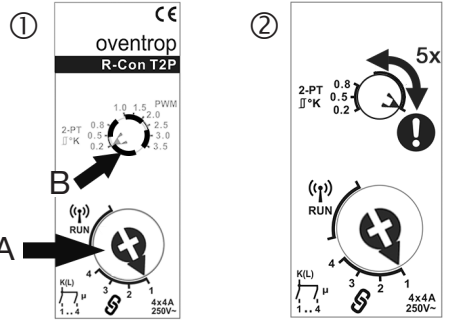
It might be useful to restore the factory settings of the control module "R-Con T 2P" if, for instance, several wireless thermostats "R-Tronic" shall be replaced and/or the channels shall be reassigned.

Proceed as follows:

1. Set the **lower rotary switch (A)** of the control module to "**1**" (turn anticlockwise until stop). The LED of the upper rotary switch (B) will flash.
2. Turn the upper rotary switch (B) **5 times clockwise until stop within 8 seconds**. The LED will flash red for 10 seconds.

▶ The factory settings were restored successfully, i.e. the assignments for all 4 channels will become null and void.

(Illustration 36)



DELETE SLAVE at the "R-Tronic"

After a reset of the control module, the function DELETE SLAVE in the menu INSTALLATION has to be carried out at all "teached in" "R-Tronic" devices.

4.6.5 Deletion of individual wireless thermostats "R-Tronic"

It is not only possible to reset all channels to factory settings (paragraph 4.6.4) but also individual channels. This means that individual wireless thermostats "R-Tronic" can be deleted from a control module which might be useful if an old "R-Tronic" shall be replaced with a new one and the old device can longer be "teached out" (for instance in case of defect).

NOTE

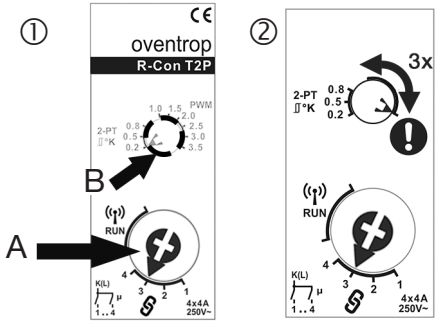
On principle, an "R-Tronic" which shall be replace with a new one should be "teached out" (see paragraph 4.6.3). This way, the corresponding channel of the control module "R-Con" will be available for a new device.

If you try to assign a new "R-Tronic" to the same channel without having "teached off" the old device, the message **CHANNEL OCCUPIED** will be displayed. In this case, please perform the following steps:

1. Set the **lower rotary switch (A)** of the control module to the channel from which the "R-Tronic" shall be deleted (for instance channel 3). The LED of the upper rotary switch (B) will flash.
2. Turn the upper rotary switch (B) **3 times clockwise until stop within 5 seconds**. The LED will flash red for 10 seconds.

▶ Channel 3 of the control module was reset to factory settings.

(Illustration 37)



4.6.6 "Emergency operation" of control module "R-Con T 2P"

The control modules of the wireless receiver feature an "emergency operation" function. Switching to "emergency operation" which serves the protection of the pipework against frost in case of malfunctions is achieved by clocking the connected actuators to a fixed opening and closing ratio of 4.5 : 10.5 minutes. If a control module switched to "emergency operation", the LED embedded in the upper rotary switch will flash even though the lower rotary switch was set to RUN correctly.

An "emergency operation" may have the following reasons:

- The batteries of a wireless thermostat ("R-Tronic RT B / RTF B") are empty.
- The radio communication between an "R-Tronic" device and the control module of the wireless receiver is interrupted by an interference source.

4.7 Controller settings at the wireless receiver "R-Con"

The response behaviour to the heat demands for the connected rooms or heating zones emitted by the wireless thermostats can be influenced via the controller settings at the wireless receiver. Control operation is possible via pulse-width modulation (PWM) or two point control (2-PT).

4.7.1 Selection of the operating mode

A controller setting to pulse-width-modulation (PWM) is recommended for **surface heating systems**. This allows a **quick and exact reaction to temperature differences** between the **actual values** measured by the wireless thermostat and the defined **nominal values**.

As for PWM control, the opening and closing time of the actuator connected to a channel is calculated from the temperature difference between the actual and nominal value. The higher the difference, the longer the opening time and the shorter the closing time of the actuator (and vice versa).

NOTE

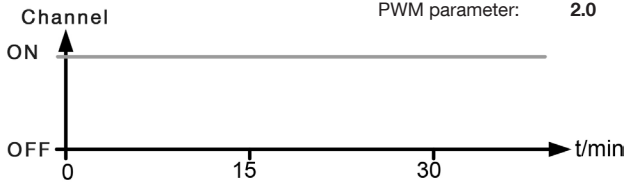
A PWM parameter which can be set at the control module defines the temperature difference (control deviation) from which the actuator of a channel is fully opened and a maximum heat output is started.

Example: If the parameter value is set to 2.0 (see example 1a-c), the actuator is fully opened by the control module at a temperature difference of 2.0°C (or more). If the temperature difference is undercut, it is clocked and the heat output is reduced.

(Illustration 38)

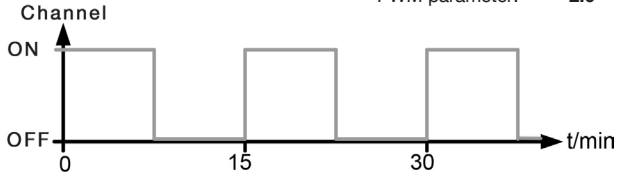
PWM example 1a
full heat output, actuator open

Nominal temperature: 22°C
Actual temperature: 20°C
Control deviation: 2 K
PWM parameter: **2.0**



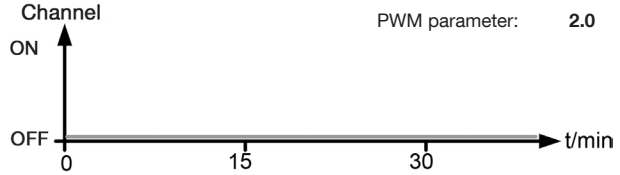
PWM example 1b
Opening/closing ratio 50:50
(clocked)

Nominal temperature: 22°C
Actual temperature: 21°C
Control deviation: 1 K
PWM parameter: **2.0**



PWM example 1c
Nominal temperature reached, no heat output, actuator closed

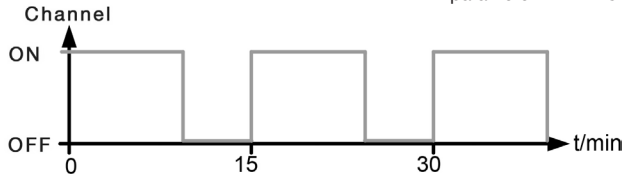
Nominal temperature: 22°C
Actual temperature: 22°C
Control deviation: 0 K
PWM parameter: **2.0**



(Illustration 39)

PWM example 2
A lower parameter setting leads to a stronger response behaviour

Nominal temperature: 22°C
Actual temperature: 21°C
Control deviation: 1 K
PWM parameter: **1.5**

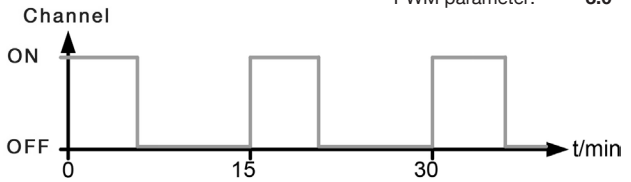


The lower the parameter value, the faster a room is heated to the nominal temperature. So-called overshoots (slight overheating above the nominal value) may, however, be caused by the longer "heating boosts".

(Illustration 40)

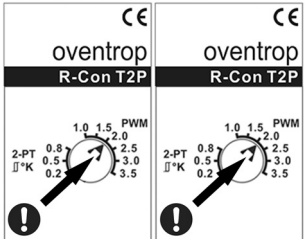
PWM example 3
A higher parameter setting leads to a weaker response behaviour

Nominal temperature: 22°C
Actual temperature: 21°C
Control deviation: 1 K
PWM parameter: **3.0**



The higher the parameter value, the slower a room is heated to the nominal temperature. Tendency to the so-called overshoots decreases. It is, however, possible that the set nominal value is not reached.

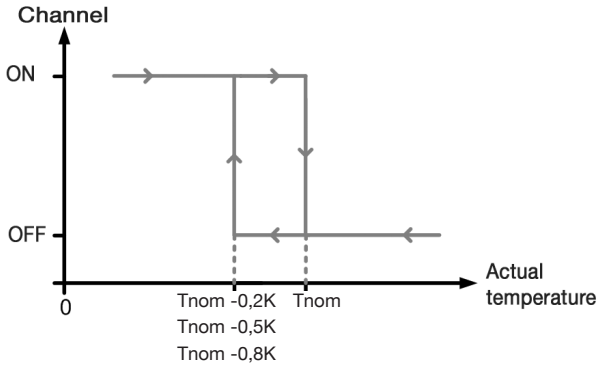
The PWM value for each control module is set by turning the upper rotary switch clockwise to the PWM section which ranges from 1.0 to 3.5K.



(Illustration 41)

A PWM with the parameter 1.0 is recommended as basic setting. Should the response behaviour of the heating system be too strong at this setting, i.e. the rooms are getting too warm, the parameter can be increased to 3.5 step by step.

Alternatively, two point control (on/off) for the connected actuators can be selected at the control module (see illustration 42). To do so, turn the rotary switch A to the left and determine a value for the hysteresis (0.2, 0.5 or 0.8K). This way, excessive switching frequencies around the defined nominal value are avoided.



4.7.2 Settings at the logic module

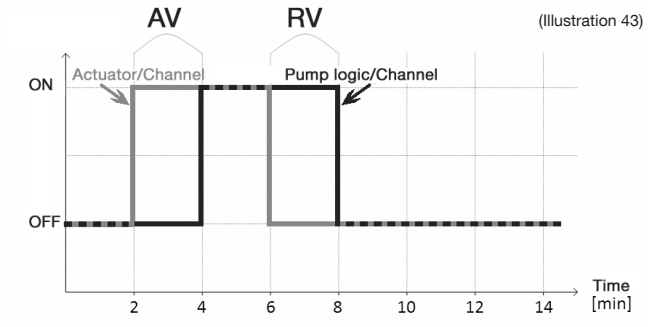
With the logic module, the wireless receiver "R-Con" features an application which contributes to the energy efficiency of the complete system by a targeted control of the heating pump.

Pump logic

The pump logic serves the adaptation of the heating pump or heating circuit operation to the sluggish reaction of the thermal actuators. This is done by defining a temporal **switch-on delay (AV)** and **switch-off delay (RV)** for the pump.

As for the **switch-on delay**, the pump will only be switched on with a delay after a heat demand for at least one channel (heating circuit) has been signalised by the "R-Tronic". As for the **switch-off delay**, the residual heat will be pumped into the heating circuits for a certain time, even if actuators have been switched off.

Exemplary switching sequence at the output of the pump logic after the opening and closing process of an actuator:

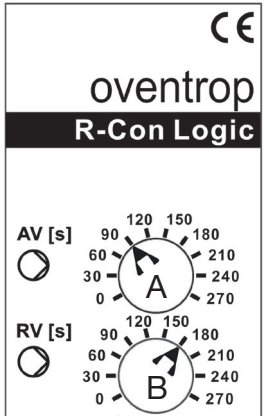


(Illustration 43)

The **switch-on delay for the pump** is set with help of the **upper rotary switch (A)** by selecting a time interval in seconds.

The **switch-off delay for the pump** is set with help of the **lower rotary switch (B)** by selecting a time interval in seconds.

(Illustration 44)

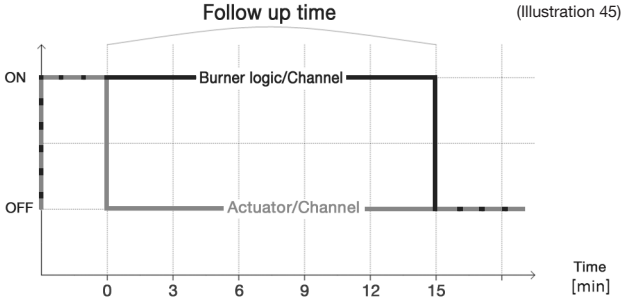


During control operation, activity of the pump is displayed by a green LED embedded in the upper rotary switch (A).

- **LED flashes:** Switch-on delay (AV) is active, pump will be switched on soon.
- **LED is lit:** Pump is in operation.

Burner logic

The burner logic serves to prevent wearing of the burner nozzle caused by repeatedly switching the burner on and off for each individual heating circuit and channel of the wireless receiver. A follow-up time of up to 15 minutes can be set for this purpose. The burner does not need to be switched on again in case of heat demands on other channels.



(Illustration 45)

Determine the follow-up time of the burner with the help of the lower rotary switch. **If the burner logic is active, the LED embedded in the rotary switch will glow green continuously.**

Once the follow-up time has expired, the burner relay will be switched off without delay as soon as the wireless receiver sends the signal to close the actuator of a "teached in" channel. The burner relay has to be restarted for each new heat demand.

NOTICE

Danger of damage to property!

It depends on the burner model whether a switch-off delay (follow-up time) can be activated. This has to be checked carefully.

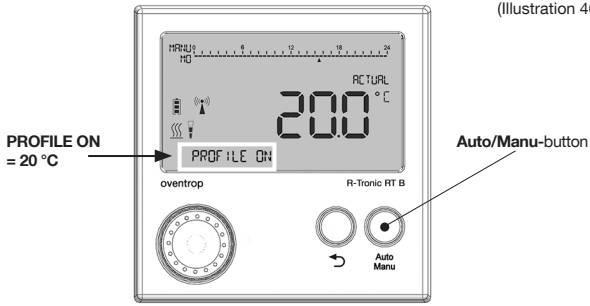
If the selected switch-off delay is too long, the temperature in the boiler may increase and the safety shutdown of the boiler will be triggered, if necessary.

4.8 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 time line across the complete 24-hour scale (MANU will be displayed):

You may switch between the different heating profiles via the Auto/Manu-button.

(Illustration 46)



4.8.1 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, for instance if it is temporarily unoccupied.

1. Press the Auto/Manu-button until PROFILE OFF will appear 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.

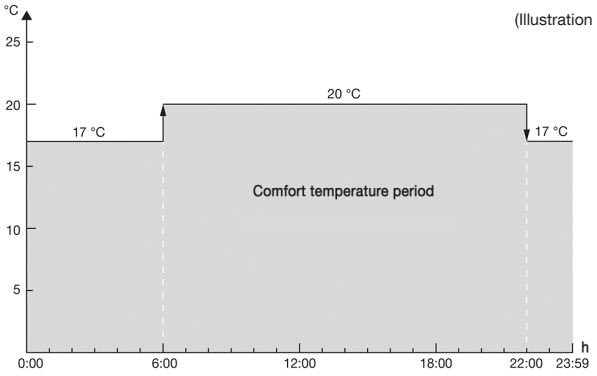
If you do not wish a constant heating or setback operation according to only one temperature setting, the pre-defined heating profile **PROFILE DAY / NIGHT** can be activated. The room temperature will be reduced to **17 °C between 22.00 h and 6.00 h** and be adjusted to the "comfort temperature" of **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 will show a line (**"comfort phase"**) between the figures "6" and "22" below the 24-hour scale of the time line. If PROFILE DAY / NIGHT is activated, the operating mode display will switch from MANU to **AUTO**.

Chart showing the switching between day and night profile

(Illustration 47)



NOTE

If an INDIVIDUAL PROFILE has already been programmed and activated in the submenu TIME PROFILE ▶ PROGRAMME SELECTION (see paragraph 5.1), the last activated INDIVIDUAL PROFILE (1-5) will be displayed when pressing the Auto/Manu-button instead of the PROFILE DAY / NIGHT.

4.8.2 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**.

NOTE

An active heating profile will be influenced by the nominal setting for a short time.

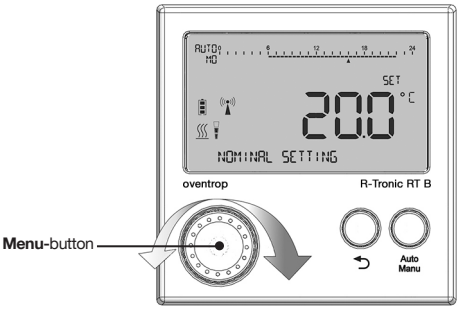
If a heating profile with different heating and setback phases is active, the selected temperature (nominal value) will only be effective until the next cycle change. The same applies for cycle changes in the sequence of programmed individual profiles (see chapter 5).

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. **Turn** the Menu-button slightly to the left or right until SET VALUE will be displayed.
2. **Press** the Menu-button. The following display will appear:

(Illustration 48)



3. **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.

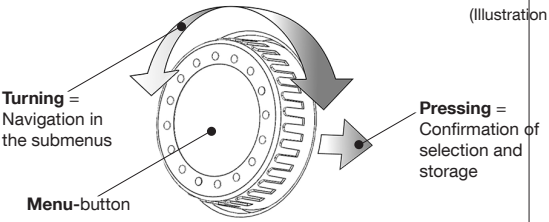
5 Operation and menu structure of the "R-Tronic"

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.

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)**.

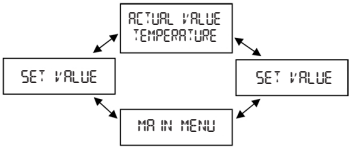
(Illustration 49)



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

The **first menu level** shows the following selection options:

(Illustration 50)



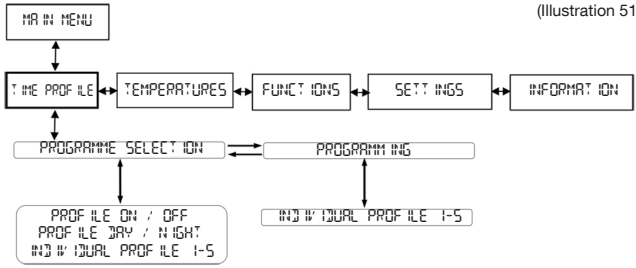
To start setting, the **display lighting** of the "R-Tronic" has to be switched on by pressing one of the three buttons (Menu-button, Return-button, Auto/Manu-button).

Now go to the main menu which can be reached from the top menu level by turning the Menu-button (to the left or right). The **MAIN MENU** will lead you to the second menu level with the following main options: **TIME PROFILE, TEMPERATURES, FUNCTIONS, SETTINGS, INFORMATION**.

5.1 Menu "TIME PROFILE"

Menu-structure:

(Illustration 51)



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.

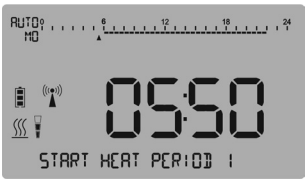
When confirming **INDIVIDUAL PROFILE 1** for instance, the following selection option will be displayed:

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**.

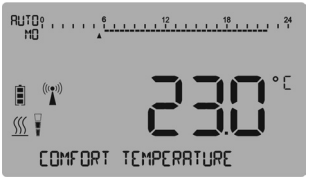
1. Determine the **start time** of **HEATING PERIOD 1** first:

(Illustration 52)



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.

(Illustration 53)

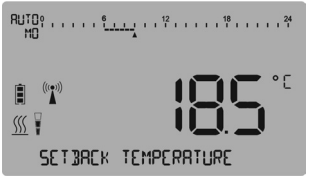


3. Confirm your entry by pressing the Menu-button and **determine the end time of HEATING PERIOD 1**.

(Illustration 54)

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.

(Illustration 55)

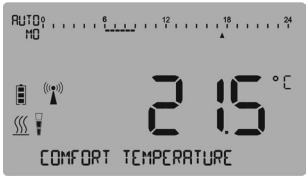


5. Determine the **start time of HEATING PERIOD 2**.

(Illustration 56)

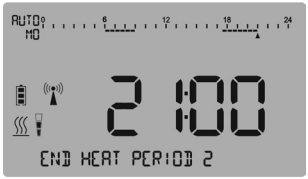
6. Select your **COMFORT TEMPERATURE** again (for heating period 2).

(Illustration 57)



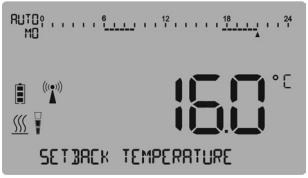
7. Define the **end of HEATING PERIOD 2**.

(Illustration 58)



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

(Illustration 59)



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

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

IMPORTANT

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.

NOTE

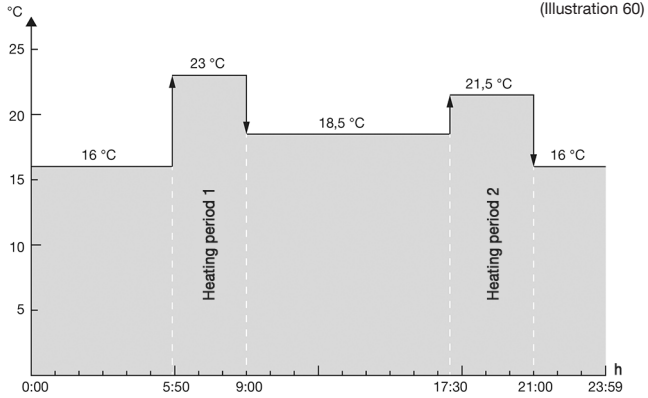
After each defined heating period you have the option to **complete** programming **prematurely** after entry of the respective SETBACK TEMPERATURE (and to set only one or two heating periods per day). To do so, turn the Menu-button slightly to the right. The message **READY** which is confirmed by pressing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

Programming of the individual profiles can be **cancelled** with the Return-button. All previous entries will be deleted now.

Time line after entry of the two heating profiles:

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

(Illustration 60)



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** 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 heating periods are programmed, the more energy can be saved.

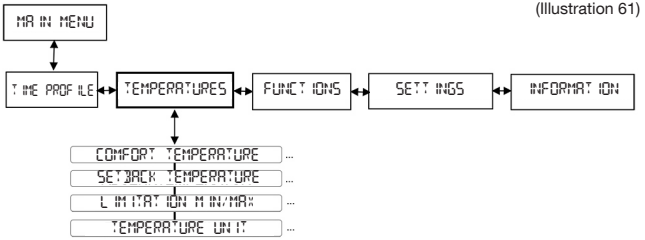
1. Define the heating periods (1-3) **separately for each day**. Entry is carried out the same way as for setting options 1 and 2. After having entered the SETBACK TEMPERATURE of the last heating period on Sunday, the message SAVED will shortly appear in the lower line of the display.
2. Activate your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

▶ Entry and activation of the heating periods for each individual day of the week are completed now.

5.2 Menu "Temperatures"

Menu structure:

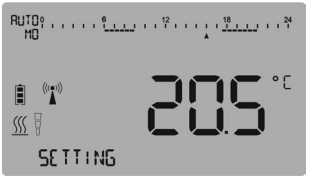
(Illustration 61)



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).

(Illustration 62)



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.

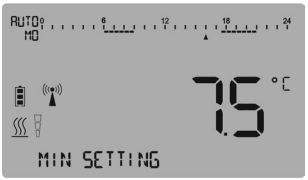
5.2.1 Setting of the general temperature range

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 ▶ LIMITATION 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 LIMITATION MIN/MAX will be displayed and confirm the selection by pressing the button.
2. Define the new lower temperature limit (MIN) and confirm your entry by pressing the Menu-button.

(Illustration 63)



The message SAVED will be displayed shortly and the display will return to the selection menu MIN SETTING.

3. To define the upper temperature limit, turn the Menu-button slightly to the right and confirm the selection MAX. Enter the new value as described before.

▶ The new general temperature limits of the "R-Tronic" set now.

The menu **TEMPERATURE UNIT** allows switching between **degrees Celsius** and **Fahrenheit**.

NOTE

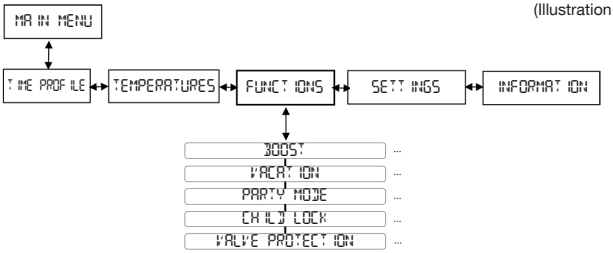
Please observe that the programmed individual profiles will be influenced by the new general temperature limits. Should the individual profile settings lie outside the new defined temperature range, they will automatically be set to the new limits.

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:

(Illustration 64)



Special "R-Tronic" functions which are described below, can be configured in the submenu FUNCTIONS.

NOTE

The BOOST function shown in the Menu structure cannot be activated for operation with the wireless receiver "R-Con". The option is only available for the wireless actuator(s) "Aktor MH/MD CON B" adapted to the "R-Tronic" (see separate installation and operating instructions).

5.3.1 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.
2. **Turn** the Menu-button slightly to the right, until the selection menu VACATION will appear on the display and confirm the selection by pressing the button.
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 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.

(Illustration 65)

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

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.

5.3.2 "Party mode" (required temperature during a defined period)

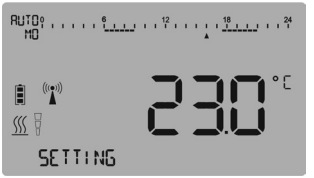
The "party mode" adjusts the room to your required temperature during a defined period. The heating profile can be inactivated temporarily. Contrary to the temperature modification via a set value (see paragraph 4.8.2), the "party mode" will be active during a certain period which is adjustable between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

(Illustration 66)

3. Enter your required degree.

(Illustration 67)



4. Activate your settings 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.

NOTE

The programmed PARTY MODE can be **cancelled** at any time. To do so, select the sub-menu 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..

5.3.3 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 your selection 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 or operation lock is active now.

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.

5.3.4 Valve protection

This function will avoid sticking of the valve stem during longer stop periods (for instance during summer). This 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 valve will now be actuated by the "R-Tronic" once a week.

NOTE

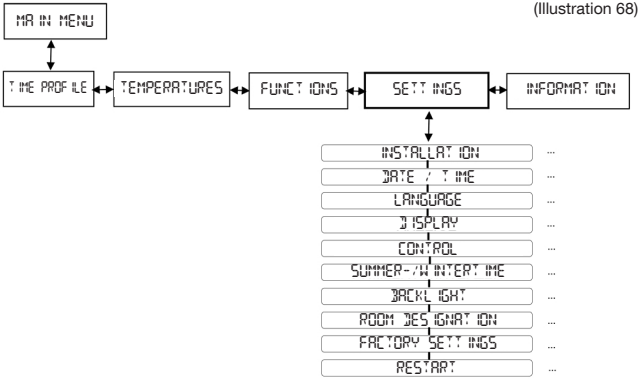
To **cancel** the valve protection, select the submenu FUNCTIONS ▶ VALVE PROTECTION and turn the Menu-button completely to the right.

The valve protection can 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:

(Illustration 68)



Connection of the "R-Tronic" to the wireless receiver 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 between "R-Tronic" and "R-Con")

This function has already been mentioned in chapter 4, paragraph 6. The radio communication between a wireless thermostat and a channel of the wireless receiver "R-Con" in created via this setting routine (TEACH IN).

The radio communication can be terminated via the command TEACH OUT. "Teaching out" is only possible if at least one channel of the wireless receiver has been "teached in" before.

NOTE

The function **DELETE SLAVE** that is part of the menu **INSTALLATION** must only be used if the channel cannot be "teached out" (for instance no access to the wireless receiver because of error or defect). On principle, the radio communication between the "R-Tronic" and a channel of the wireless receiver must only be terminated 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 and French. 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 entry.

▶ 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 offer the following selection options:

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

NOTE

The air humidity of the room is permanently measured by the "R-Tronic" models "RTF B" and "RTFC K" 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.

- CO2 CONCENTRATION in PPM (**Display option "R-Tronic RTFC K" only**)
- ALTERNATING (Display alternates between ACTUAL VALUE, SET VALUE, HUMIDITY, CO2 CONCENTRATION; **Display option "R-Tronic RTFC K" only**)

5.4.5 OFFSET-TEMPERATURE control "R-Tronic"

Temperature measurement of the wireless thermostat 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.

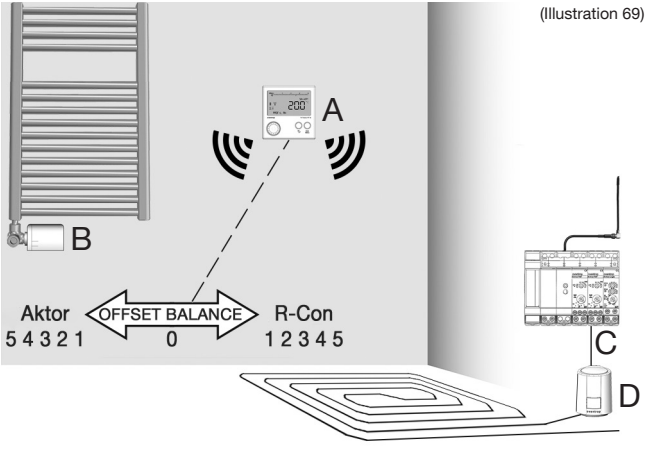
To do so, select **SETTINGS ▶ CONTROL ▶ OFFSET TEMPERATURE** via the Menu-button and store the required value.

5.4.6 Combined control of underfloor heating circuit and radiator

For rooms in which one or several underfloor heating circuit(s) and a radiator were installed (for instance bathrooms), the "R-Tronic" offers the option of a combined balance control which serves to compensate the different response behaviours (a radiator warms up faster) and to co-ordinate the heating effect relationship of both types of heating.

The "R-Tronic" menu offers the option to specify whether the set nominal value shall rather be reached via the heat output of the radiator or via the heat output of the underfloor heating circuit.

(Illustration 69)



Prerequisite is that an actuator for wireless thermostats "Aktor MH/MD CON B" **(B)** (item no. 1150665/1150675) as well as a control module channel of the wireless receiver **(C)** have been adapted to the "R-Tronic" **(A)** before. The "Aktor MH/MD CON B" serves the control of the radiator valve and the actuator(s) "Aktor T 2P" **(D)** which is activated via the "R-Con" channel serves the control of the underfloor heating circuit (see illustration 69).

To specify the heating effect relationship between the surface heating and the radiator, go the "R-Tronic" menu **SETTINGS ▶ CONTROL ▶ OFFSET BALANCE** and determine a value.

- Turn the Menu-button of the "R-Tronic" to the **left** to shift the **heat output towards the radiator**.
- Turn the Menu-button of the "R-Tronic" to the **right** to shift the **heat output towards the underfloor heating circuit**.

5.4.7 Summer-/winter time

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

5.4.8 Display lighting (ON/OFF)

The display lighting of the "R-Tronic RTFC K" is switched on by pressing the Menu-button, the Return-button or the Auto/Manu-button. The display lighting can also be deactivated permanently.

In the standard configuration the display lighting of the "R-Tronic RT B" and "R-Tronic RTF B" is **switched off** but can be activated. To do so, select **SETTINGS ▶ BACKLIGHT** via the Menu-button and decide whether the lighting shall be **activated** or **deactivated**.

5.4.9 Assignment of the room designation to the "R-Tronic"

When using several battery-operated wireless thermostats "R-Tronic" it might be useful to allocate a room designation to the individual thermostats. This will help you to re-install them at the same location if all thermostats 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 the entry of he last digit.

▶ A room designation is assigned to the "R-Tronic" now.

5.4.10 Factory settings "R-Tronic"

It might be useful to restore the factory settings of the "R-Tronic" if, for instance, wrong settings that do not guarantee an efficient heat control of your room were stored by mistake. All individual settings and assignments of the "teached in" channels of the wireless receiver will be cancelled when restoring the factory settings. This is why the radio communication between the "R-Tronic" and the wireless receiver always has to be restored (necessary steps see paragraph 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

If you wish to restore the factory settings of several wireless thermostats, it is recommended to restore the factory settings of the wireless receiver respectively control module, too, and to repeat the "teach in" process of all channels. Please also read paragraph 4.6.4.

5.4.11 Restart "R-Tronic"

The "R-Tronic" can be restarted (for instance 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 ▶ RESTART ▶ YES/NO**.

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

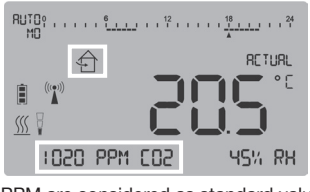
In comparison with the model "RT B" and "RTF B", the "R-Tronic RTFC K" features an a CO2 measured value detection. The integrated sensor continuously measures the carbon dioxide content (CO2 value) in the ambient air and it will be displayed when the defined value is exceeded. Excessive CO2 values have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

NOTE

The display of the "R-Tronic RTFC K" shows the CO2 values in PPM. A PPM value of 1,000 is, for instance, equivalent to 1,000 parts (parts per million) of CO2 per one million parts of room air or a CO2 content of 0.1%. For comparison: The average CO2 content 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:

(Illustration 70)



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 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.

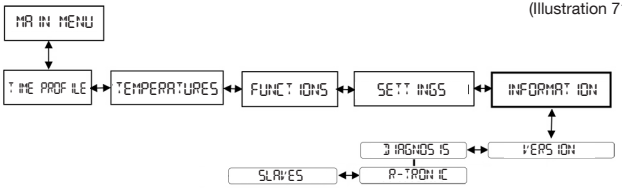
1. Go to the MAIN MENU. After having pressed the Menu-button you will reach the submenu TIME PROFILE. Turn the Menu-button to the right and confirm the selection ROOM CLIMATE and the following selection CO2 ALERT THRESHOLD.
2. Select a **PPM value** between **450** and **2,000** and confirm the selection **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:

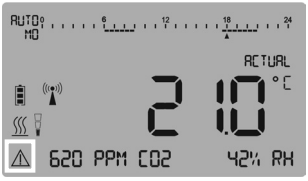
(Illustration 71)



The general information data for the used "R-Tronic" can be called up in the menu INFORMATION. The version number refers to the installed type of "R-Tronic". Please keep this number ready when calling our technology hotline in case of queries.

The selection menu **INFORMATION ▶ VERSION ▶ DIAGNOSIS** informs you about the respective IDs of the "R-Tronic" and the respective numbers of the "teached in" channels of the control module T 2P. Furthermore, possible error messages are displayed here.

(Illustration 72)



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 wireless receiver. Confirm the selection **INFORMATION** by pressing the Menu-button. The version number of the "R-Tronic" will be displayed. Turn the Menu-button slightly to the right and confirm the selection **DIAGNOSIS**.

2. Turn the Menu-button slightly to the right or left to switch between the submenus **R-TRONIC** and **SLAVES (R-Con T 2P)**.
   Important:
   The warning symbol will only be displayed where the problem is.
3. 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.

4. If an **error** occurred at the **wireless receiver** (warning symbol active), press the Menu-button once starting from the submenu **DIAGNOSIS ▶ SLAVES**. The channel number(s) to which the warning symbol refers can be displayed here (1-4).
5. Confirm the selection of the radio channel in front of which the warning symbol is displayed (there is a problem with the channel) by pressing the Menu-button.

▶ The specific error or the incident impairing the function of the wireless receiver will now be shown on the "R-Tronic" display, see below **example**:

(Illustration 73)

NOTE

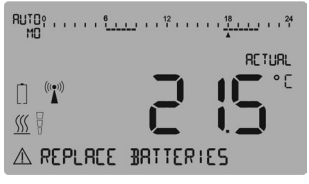
The exact specification of errors and malfunctions as well as remedial measures are detailed in chapter 7 (Display notes and error messages).

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

5.7 Battery replacement "R-Tronic"

Maintenance of the "R-Tronic" 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 wireless receiver are empty.

(Illustration 74)

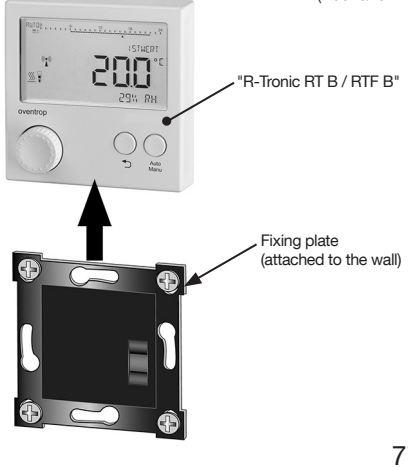


Battery replacement "R-Tronic" (only "RT B" / "RTF B")

NOTICE
The "R-Tronic" is not designed to use rechargeable batteries.

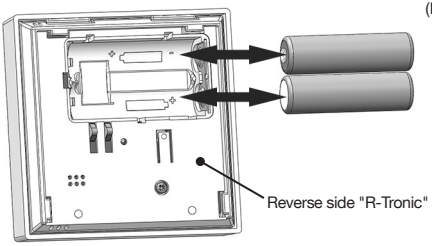
1. Remove the "R-Tronic" from the fixing plate attached to the wall by pulling it vertically up-wards.

(Illustration 75)



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 +/-.

(Illustration 76)



3. Reset date and time (see paragraph 4.6.1).
   All other settings will be maintained.

▶ After having replaced the batteries, the "R-Tronic" is ready for operation again.

Radio connection "R-Tronic" / "R-Con" after battery replacement

If the batteries of the wireless thermostats (models "RT B" and "RTF B") are replaced, the "teach in" process must not be repeated. The radio connection between the "R-Tronic" and the wireless receiver will be restored automatically.

NOTE

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

If the device is 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.

NOTE regarding cleaning

The casings of the "R-Tronic" and the wireless receiver must only be cleaned with a soft dry cloth. Do not use any detergents.

6 Disposal

The "R-Tronic" and the wireless receiver must not be disposed of with the standard waste, but separately as electric 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.
SUCCESSFUL	"Teach in" process completed successfully.
SYNCHRONISING AKTOR	A radio communication between all wireless actuators and the "R-Tronic" is automatically created after a connection to the power supply and after replacement of the batteries (process will take several minutes).
SLAVE KNOWN	Slave has already been adapted to the wireless thermostat.
CHANNEL OCCUPIED	"R-Con" channel is already occupied.
DIAGNOSTIC FUNCTION	Error analysis via INFORMATION ▶ DIAGNOSTIC (More detailed information on possible error messages see below)
BOOST PENDING	Boost function activated and pending.
BOOST 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 temperature is active.
BATTERY FULL	Battery status: "full"
BATTERY MIDDLE	Battery status: "middle"
BATTERY LOW	Battery status: "low"
BATTERY EMPTY	Battery status: "empty"
REPLACE BATTERIES	Batteries need to be exchanged.

NOTE regarding error messages
When the WARNING SYMBOL ⚠ is displayed, select the menu **INFORMATION DIAGNOSIS** to get more detailed information on the problem.

NO ERROR MESSAGE	The wireless thermostat "R-Tronic" works perfect.
NO SLAVE CONNECTED	No "teached in" slave ▶▶ "teach in" at least one slave (paragraph 4.6)
SLAVELIST FULL	"Teaching in" of a further slave is impossible, as the maximum number (3) has been reached.
SLAVE UNKNOWN	"Teach out" process for the slave which has not been "teached in" before, has been launched.
NO RESPONSE	Batteries empty ▶▶ Replace batteries. Radio communication disturbed ▶▶ see Chapter 4.1.
CALIBRATION REQUIRED	"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 DEFECT	Drive motor defective (Aktor 1-3) ▶▶ Replace actuator.
POWER SUPPLY DEFECT	Temporary poor power supply of the actuators ▶▶ Check contacts or replace batteries.
ELECTRONIC DEFECT	Temporary poor power supply of the "R-Tronic".
TIME PROFILE INVALID	Incorrect programming of individual profile ▶▶ Re-programme profile.

RADIO DISTURBANCE	Radio communication disturbed Error analysis via INFORMATION ▶ DIAGNOSIS (see also chapter 4.1)
ENOCEAN ERROR	Possible error at installed wireless module.
INIT ERROR	Initialization error occurred.
MEMORY DEFECT	Error in the electronic memory ("R-Tronic").
T-SENSOR DEFECT	Temperature sensor defective ("R-Tronic").
H-SENSOR DEFECT	Humidity sensor in the "R-Tronic RTF B / RTFC K" defective.
CO2-SENSOR DEFECT	CO2 sensor in the "R-Tronic RTFC K" defective.
HIGH PPM	CO2 value higher than 2,000 PPM
BUTTON DEFECTIVE	Button at the "R-Tronic" does not trigger a function (contact problem)

NOTE

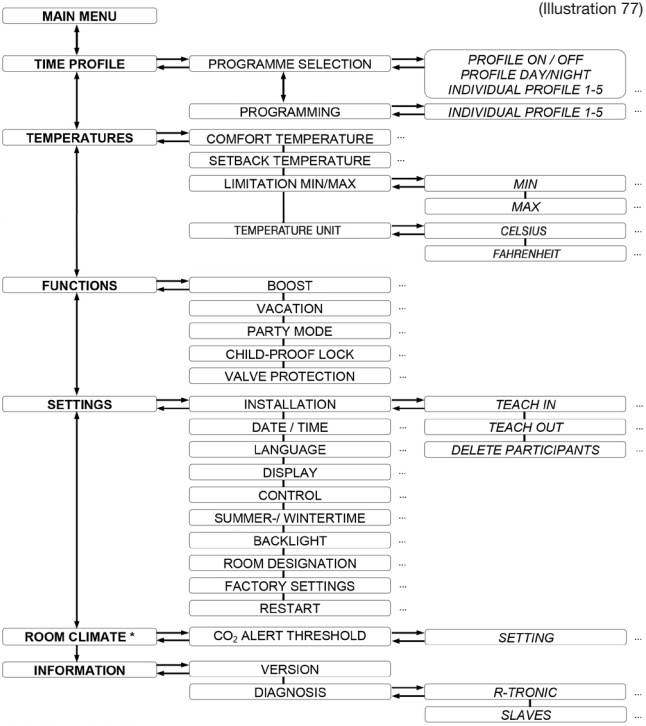
If you do not succeed in eliminating the malfunction, disconnect the "R-Tronic" from the power supply (battery, power pack or mains adaptor) for about 10 seconds. A restart will help to solve the problem in many cases.

If the problem could not be solved, restore the factory settings of the "R-Tronic" and of the control module "T 2P" as described in chapter 5 (paragraph 4.9).

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

8 Schematic menu overview

(Illustration 77)



* Only for "R-Tronic RTFC K"

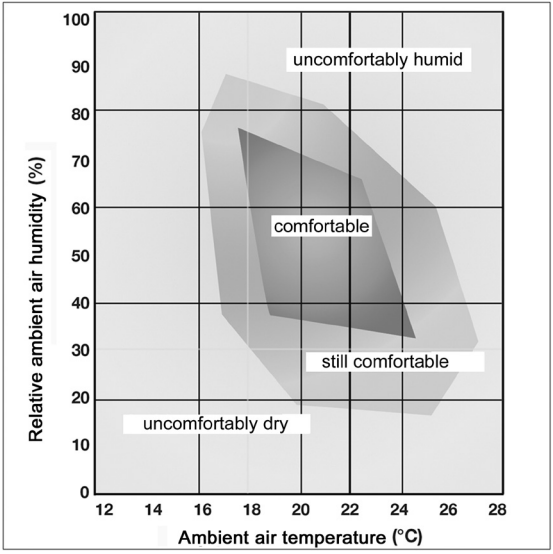
9 Air humidity and "comfort diagram"

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" (Illustration 78)



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115077281 04/2019 (Version 2.3)