

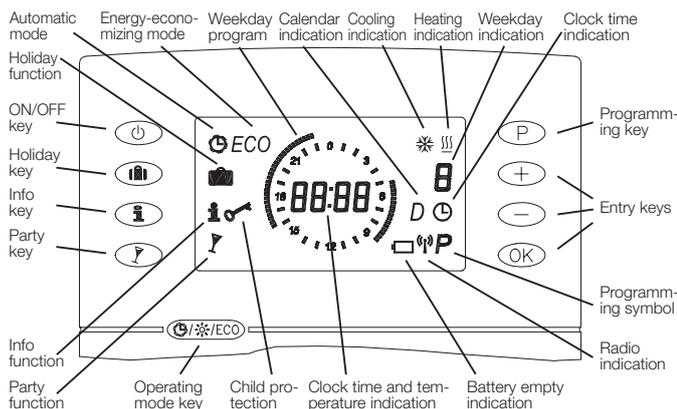
# Operating instructions

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## 1. Operating instructions

- The direct select keys for ON/OFF, holiday and party settings, operating mode switchover and the entry of programs enable to manipulate the device in a very simple manner, even after longer operating pauses.
- The devices of the FTRFBu series are, in order to gain a fast overview of the actually adjusted values, all equipped with a separate information mode, the selection of which is possible also directly by a key. In this mode, no values can be misadjusted in error.
- The adjusting knob with the °C imprint on it enables to set and read the desired set temperature in an uncomplicated manner.
- The setting of the times for both comfort and ECO mode operation has been modelled on the example of shift segments or so-called "shiftable stops" (well-known from the setting of mechanical switch clocks). The term "handling without studying" best describes the idea behind this concept.
- Pressing, during the entry of data, one of the keys (+) or (-) longer, activates a scroll function.



## 2. Functions allocated to the direct select keys (P), (ECO), (ON/OFF), (Holiday), (Info), (Party)

The device has 6 direct select keys in total that enable to select and quit the desired function. All keys are deactivated that are not required while remaining in one of the functions. The selection of another function is enabled only after having quit the currently selected function.

### 2.1 Entry of programs (P)

The program entry function serves for the adjustment of the ECO temperature, the time, the date and the different weekday programs. Once activated, it works according to the principle that is commonly known as „compelled guidance“. When confirming a certain value by actuating the (OK) key, the display will change over to the next entry to be made. The letter "P" is being displayed to indicate the active state of the function. Depending on the entry step to be made, the function allocated to the next value to be entered is being represented through easily comprehensible symbols while the fields for the value to be entered are flashing. When

confirming the Sunday program, the program entry mode is being quit all automatically. Actuating the direct select key (P) at any time can also terminate the program entry. Once no key is actuated for any longer than 2 minutes, the entry mode function is terminated all automatically. Entries will be imported only after confirmation with the (OK) key. After termination of the program entry function, the display changes again back to the previously indicated operating display.

### Entry procedure:

- Press the direct select key (P) first, and then enter the ECO temperature (the logogram „ECO“ appears on the display). Depending on the adjustment settings, the actually entered ECO temperatures are either stored as absolute values within a range from 5 to 29°C (factory setting 17°C) or as set value-dependent values (temperature decrease during operation in heating mode -1°... -6° (heating OFF) and temperature increase during operation in cooling mode 1°... 6° (cooling OFF) factory setting: heating -2°, cooling +2°).
- After confirmation with the (OK) key, the clock time can be entered (the clock symbol (C) is shown on the display). Enter the hours first and then the minutes.
- After confirmation with the (OK) key, the date can be entered (the letter „D“ appears on the display). First enter the year, then confirm with (OK). After that, enter both the corresponding month and weekday.
- Then press the (OK) key to enter the weekday programs. To do so, select the corresponding weekday first. For Monday, the number 1 appears flashing on the display. The selection of all other weekdays is made by means of the (+) and (-) keys.
- After confirmation of the selected weekday with the (OK) key, the shift segments or "shiftable stops" can be set (beginning at 0.00 o'clock). In addition to the time to be adjusted, the position at which the related "shiftable stop" can be set starts flashing too. Any actuation of the (+) key sets a shiftable comfort temperature stop (equivalent to a quarter of an hour), while actuating the (-) key enables to advance by another quarter without setting any shift segments. Pressing the (+) or (-) key longer activates the scroll function. Repeating the entry step and replacing it by a new one can correct misentries. This can be realised without leaving the actually selected weekday simply by overstepping the 0.00 o'clock marker and repeating the related entry step.
- After confirmation with the (OK) key, the next weekday starts flashing for selection.
- After selection of the next day by means of the (OK) key, the copy function is enabled and the system suggests continuing with the program that has been entered for the previous day. The suggestion can either be imported by means of the (OK) key or another program be entered instead. After confirmation with the (OK) key, the next weekday flashes for selection, etc. The copy function is stopped when selecting Saturday. In this case, the program chosen for Saturday is again suggested by the system for use on Sunday. Once the radio room temperature sensor has been adjusted to a heating & cooling system, the weekday programs for the operating mode "cooling" are extending the entry range. Regarding other setting options, please see section 3., "Adjustment functions".

## 2.2 Heating system, climate conditioning or cooling system indication

If the sensor has been adapted to a heating system (factory setting) the heating symbol (H) is being displayed permanently during operation in all three operating modes, i.e. comfort, ECO and automatic mode. If it has been adapted to a climate conditioning system (heating & cooling), both symbols (H) (C) are being displayed while operating in automatic mode. In this mode, the program indication and the corresponding symbols will alternate every 15 seconds from heating mode to cooling program indication and vice versa. If deactivating the program indication during operation in adjustment mode (corona symbol), the symbols (H) and (C) are also indicated during operation in automatic mode.

## 2.3 Switchover between the operating modes "automatic" (A), "comfort" (C) and "energy-economizing mode" (ECO) (ECO)

This function has been implemented for switchover between the three operating modes "automatic" (A), "comfort" (C) and „energy-economizing“ (ECO). Special shift segments, so-called shiftable stops (known from mechanical switch clocks) that have been arranged in a corona-like manner represent the actually adjusted operating mode on the display. Shift segments ("shiftable stops") indicate the comfort mode times visibly, while energy-economizing times are indicated through missing segments. The operating modes "automatic" and "energy-economizing" are indicated additionally by the clock program symbol (C) and the logogram "ECO". The operating mode "comfort" is exclusively indicated through the circumferentially arranged corona of shiftable stops. Once the device operates in comfort mode (C), the controller controls all operations permanently in dependence on the comfort temperature value that has been set at the adjusting knob beforehand. If operating in energy-economizing mode (ECO mode), the controller regulates all operations subject to the ECO temperature value entered beforehand. If operating in automatic mode (A), the system toggles all automatically between comfort and energy-economizing mode operation.

## 2.4 The ON/OFF function (ON/OFF)

Actuating the (ON/OFF) key deactivates the control system. When actuating the (ON/OFF) key again, the control system returns to the previous operating mode. Once the control system is in OFF condition, "OFF" is being indicated on the display in order to delimit this condition against a radio room temperature sensor supply voltage failure due to depleted batteries. Once it has been deactivated, the system never-

theless ensures frost protection (5°C). The valve and pump protection remains likewise active if activated in the adjusting menu.

## 2.5 Holiday function

The holiday function has been implemented for energy saving purposes. It serves for the economization of energy during longer absences and for the timely heating up to the desired temperature prior to the time the return of a person was scheduled. When actuating the  key, the date of the next day is being displayed. After the setting of the return date by means of the keys ,  and , the holiday time temperature is being displayed (factory setting 17°C). This holiday time temperature too can be changed within a range from 5 to 30°C. After confirmation of the holiday time temperature by means of the , key, the holiday function is rendered active and both the return date and the holiday symbol  are being displayed. Actuating the direct select key  at any time cancels the holiday function. If not terminated this way, the function is cancelled all automatically at 0.00 o'clock of the actually entered return day. Once the holiday function has been cancelled, the control operations are being continued in the previously selected operating mode and the related indications displayed again.

## 2.6 Information function

The info function enables to indicate all actually adjusted values. No inadvertent misadjustment can take place while doing so. Once this function is active, the symbol  is being indicated on the display. After actuation of the  key, the actually adjusted ECO temperature is indicated first. Actuating the keys  and  enables to inquire all actually adjusted values. Within this function, values can neither wilfully nor inadvertently be misadjusted. Actuating the direct select key  at any time cancels the info function. If not terminated this way, the function is cancelled all automatically 2 minutes after the last keystroke was made. The selection of the info function does not impair any of the control operations currently performed. Once the info function has been cancelled, the display returns to the previously indicated operating screen.

## 2.7 Party function

The party function serves, independent of the actually adjusted program or operating mode, for the one-time triggering of a comfort heating time as of the moment this time is entered. Actuating the key  displays the next possible end of the comfort heating time (party end). After the adjustment of the end time by means of the keys ,  and , the party function is active. Once it is active, the end time and the party symbol  are being displayed until to the end of the adjusted comfort heating time. Actuating the direct select key  at any time cancels the party function. If not terminated this way, the function is cancelled all automatically after the attaining of the adjusted end time. Once the party function has been cancelled, the control system returns to the previously operated operating mode and shows the corresponding display features.

## 3. Adjustment functions J.1 ... J.6 ,

The adjustment functions serve for the usually only one-time adjustment to the individual user requirements. They have, in support of an easier operation, been taken from the normal operator control interface and are being displayed in a special menu. Pressing the  key first and pressing the key  afterwards in addition accesses the adjustment mode. After that, the first adjustment function (J.1) appears on the display. Actuating the keys ,  and  enables to select the desired adjustment function. The desired settings too are realised by means of the keys  and  and need to be confirmed by means of the  key. Actuating the key  cancels the adjustment function at any time. If not terminated this way, the function is cancelled all automatically 2 minutes after the last keystroke was made. Entries that have not been confirmed by striking the  key will not be imported. Once the adjustment function has been cancelled, the control operations are being continued in the previously selected operating mode and the related indications are being displayed again. Regarding further setting options and the adjustment functions available in "craftsman mode", please refer to section 12. in these instructions.

## 3.1 J.1 Learn function

The execution of this function is required in addition to the learning procedure performed during the commissioning of the system and serves to assign the radio room temperature sensor (transmitter) to a number of different radio temperature actuators (receivers) without any need to enter the clock time repeatedly in consequence of the repeated removal of the batteries. An "L" appears flashing after selection by means of the  key. Pressing the  key again triggers the learning procedure that lasts for 10 seconds. The indicating light at the radio room temperature sensor flashes red during this time. Once the learning procedure is over, "J.1" appears again on the display to indicate that the radio temperature sensor can now be assigned to another radio room temperature actuator. Regarding the execution of the assigning or learning procedure, please pay regard to section 11., sub-section 1.) and 2.).

## 3.2 J.2 Cancelling function

This function serves for the cancelling of assigned radio room temperature sensors (transmitter) from the radio temperature actuator (receiver). The logogram "L" appears flashing on the display after selection by means of the  key. Pressing the  key again triggers the cancelling of the sensor that lasts 10 seconds. The indicating light at the radio room temperature sensor flashes red during this time. Pressing the learn key at the radio temperature actuator during this time enables to cancel the radio room temperature sensor completely.

## 3.3 J.3 Indication during service: time, temperature and time/temperature (alternately)

A1 = permanent indication of the time (factory setting)  
A2 = permanent indication of the temperature  
A3 = alternating indication of time and temperature  
(indication in each case: 5 seconds)

## 3.4 J.4 Program indication via shift segments (shiftable stops arranged in a corona-like manner), ON/OFF

ON (factory setting)  
OFF

## 3.5 J.5 child protection

The child protection realised with the device serves to prevent an inadvertent misadjustment or the misadjustment through unauthorized third persons during operation. After activation of the child protection function all keys and all change options available via the temperature-setting knob are locked 3 minutes after the last keystroke was made and the key symbol  appears on the display. The keys can be reactivated by pressing the  key for approx. 10 seconds until the key symbol disappears from the display. The key symbol blinks while pressing the (OK) key. The keys are locked again all automatically 3 minutes after the last keystroke was made. In the event the set temperature was changed via the adjusting knob during the time the keylock is active, this adjustment becomes valid only after the reactivation of the control elements.

ON  
OFF (factory setting)

## 3.6 J.6 Automatic change to daylight saving and standard time, ON/OFF

The harmonised daylight saving time in the European Union takes effect as of the last Sunday in March, i.e. as of 2.00 o'clock a.m. CET and lasts until 3.00 o'clock a.m. on the last Sunday in October (CEST) each year (directive 2000/84/EC of the European Council and Parliament). The radio room temperature sensor changes the time all automatically at these dates. The automatic change to daylight saving and standard time can also be deactivated to enable the changing of the time at other dates or to meet the time conditions in other regions.

ON (factory setting)  
OFF

## 4. Reset function ,

The reset function serves for the restoration of the delivered condition and resets all possibly entered program times, ECO and holiday temperature values and adjustment settings to the original factory settings. The clock time, the calendar indication and the values entered while operating in craftsman mode, however, will not be reset. To prevent an inadvertent reset, this function can be triggered only by means of a combination of 2 keys that need to be operated in the following order: First depress the  key and then the  key permanently for approx. 10 seconds until the indication stops blinking. After that, the delivered condition is, with the exception of the above-mentioned restrictions, restored again.

## 5. Battery low indication

In the event the flashing "battery low" symbol  is not detected early enough, the lamp at the radio room temperature sensor starts flashing red for 5 seconds per minute. The battery low condition is indicated this way for at least 7 days. The control operations are being maintained during this time. The indication of the battery low condition does not relate to the backlight battery. However, as there is risk that it could likewise get flat as a consequence of the expiry of its lifetime, we recommend replacing the backlight battery as well. There is no need to submit the radio temperature sensor to another learning (assigning) procedure after the replacement of the batteries. Only the clock time and the date need to be entered anew in this case.

## 6. Luminous and other indications shown on the radio room temperature sensor display

### Lamp off:

The radio room temperature sensor works correctly. Condition: Batteries correctly inserted.

### Lamp flashes red:

The state of charge of the batteries is low and the batteries need to be replaced. The control system remains active while the lamp flashes and works correctly → see section 5., "Battery low indication" and section 10., "First start up and commissioning". The lamp flashes likewise red during the learning procedure (see sections 3.1 and 11.).

### Lamp lights permanently red:

The lamp lights permanently red during the execution of the cancelling procedure (see section 3.2).

### Display indication: Fbr

Sensor breakdown. The device needs to be checked by the manufacturer.

### Display indication: FSch

Sensor short-circuit. The device needs to be checked by the manufacturer.

### Display indication:

This symbol appears only briefly (1 second) to indicate a radio transmission to the radio temperature actuator.

### Display indication:

The state of charge of the batteries is low. The batteries need to be replaced.

### Indication: Shift segments ("shiftable heating stops") appear flashing

Shift segments, if flashing during the time the system is operated in automatic mode, indicate the antedated point at which the systems changes over from ECO to comfort mode operation. The room temperature sensor itself is identifying the antedated switchover point, provided however, the self-learning function has been activated while operating in craftsman mode (see section 12.3.).

### Display indication: L

Learning mode (assigning mode), see sections 3.1 and 11.

### Display indication: -L

Cancelling mode, see section 3.2

# Installation instructions

## Safety information

This device constitutes, in conjunction with the corresponding radio temperature actuator (receiver), a control unit. This is why the first installation of the device is to be made by an expert electrician in due consideration of the currently applicable safety regulations and rules.

**Caution!** The operation of the radio room temperature sensor in the vicinity of other devices that do not comply with the EMC directives may affect its functions. Settings or changes of the adjustments made while operating in craftsman mode may affect the control system and may therefore only be made by an accordingly qualified expert. The company charged with the installation of the device must, after the completion of the installation works, instruct the user of the control system into its functions and in how to operate it correctly. These operating instructions must be kept at a place that can be accessed freely by the operating and/or servicing personnel in charge.

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## 7. Advice to the installer

A description of the following functions can be learned from the operating instructions established for the radio temperature actuator:

- Central control (control of the heating/cooling operations performed in individual rooms based on a central set value)
- Average value control (acquisition of the temperature values sensed by several radio room temperature sensors)
- Master-slave control (automatic multiple room operation piloted by one central clock-equipped sensor)
- Radio link loss (interruption of the radio link)
- Emergency operation function in the case of a radio link loss (control if an interruption of the radio link occurs)
- Functional check of the radio link

## 8. Application

This radio room temperature sensor (transmitter) with time-controller and energy economizing function has been specially devised for the acquisition of temperatures in living spaces, offices and hotel rooms. It has been designed for the operation in association with one or several radio-temperature actuators (receivers). The overall system that usually consists of both a radio room temperature sensor and a radio temperature actuator serves for the control of temperatures that exist in different rooms. It is chiefly used in the building reconstruction sphere or wherever heating systems are to be extended and where the avoidance of expensive cutting up and/or plaster works for the laying of electric cables is of importance. The same applies also with regard to modern office complexes where flexibility with regard to the interior design is in the fore. Regarding other applications not to be foreseen by the manufacturer of this device, the safety standards concerning these applications need to be followed and adhered to. Regarding the aptitude of the device for any such application, please refer to section 18. herein (Warranty).

## 9. Functional description

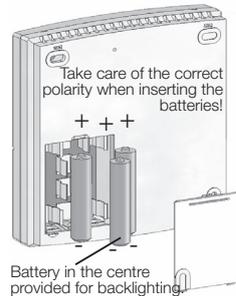
The FTRFBu measures, based on the data delivered to it by internal sensor, the actually prevailing room temperature and transmits it, along with the desired set temperature, to the correctly learned or assigned radio temperature actuator. The system provides the option to assign the radio temperature sensor (transmitter) to an arbitrary number of radio temperature actuators (receivers). Several electric heaters / plate-type electric heaters or hot water valves can thus all be triggered by one sensor only. The transmission range of the radio temperature sensor depends largely on the prevailing spatial conditions. Sheathed or reinforced walls, ceilings or metal casings will thus reduce the transmission range.

## 10. First start-up and commissioning

The radio room temperature sensor is not operable in condition as delivered. Readiness

for operation is obtained only through the insertion of the batteries and the assigning of the radio temperature sensor (transmitter) to the related radio temperature actuator (receiver) by way of a so-called „learning procedure“, see also section 11. hereafter, „Learning function“. When inserting the batteries, care must be taken to comply with their correct polarity. The maximum battery service life can be reached only when using batteries of the specified type and quality. The model FTRFBu180.121 has been equipped with an additional backlight that requires a third battery for supply.

This battery is to be inserted centrally between the two batteries for the supply of the temperature control operations. The lifetimes of the two batteries needed for the supply of the temperature control operations and of the one needed for backlighting are thus independent of each other. Once the batteries have been inserted, the room temperature actuator performs a self-test first that lasts only some seconds. During this self-test, all display symbols appear on the display. Once the self-test is over, the software version used with the device is being displayed for some seconds. After that, the radio temperature sensor changes all automatically over to learning mode operation for a two minutes time. The letter „L“ appears on the display during this time. Once the learning or assigning procedure is over (see section 11.), the fields for the entry of the clock time and the date appear blinking on the display („00.00“) and the operator is asked to enter these data. Actuating the key  at this stage enables to stop the learning or assigning procedure and to change to the entry of the clock time and the date. If, upon first start-up and commissioning, no clock time and date are entered, the automatic mode  is activated after the expiry of 2 minutes. **Caution:** If no clock time and date are entered, the clock time starts running as of 00.00 o'clock and the comfort heating times are not consistent with the actual time of the day. Section 2.1, „Entry of programs“, contains a description of the setting of the clock time and of the date after the activation of the automatic mode.



## 10.1 Adaptation of the display and entry options to the controlled temperature equalization system: heating system / heating & cooling (climate conditioning) system / cooling system

The adjustment step J.11 is to adapt the radio room temperature sensor to the controlled temperature equalization system, i.e. to „heating only“ (factory setting), „cooling only“ or „heating & cooling“ (climate conditioning). This adaptation is required in order to activate the display and entry options associated with the controlled temperature equalization system or to deactivate all inapplicable ones (dynamic menu). **Caution:** If failing to adapt the sensor to the temperature equalization system to be controlled, the energy economizing function (ECO) will not be executed once the operating modes „heating“ or „cooling“ have not been activated.

## 11. Learning function

The learning function enables to assign and attune a certain radio temperature sensor (transmitter) to the related radio temperature actuator (receiver). There are two options to trigger the learning procedure to be performed by the transmitter (radio room temperature sensor), scilicet either directly after the insertion of the batteries during the commissioning as described in above section 10 or while operating in adjustment mode (see section 3.1).

**Learning procedure after insertion of the batteries:** After the insertion of the batteries, the execution of the self-test and the indication of the software version used with the device, an „L“ is being displayed for 2 minutes to indicate that the device operates in learning mode now. The receiver is, after the expiry of this time, changed over to learning mode operation. Once this is the case the  Actuating this key triggers the transmission of a learn identifier for 10 seconds. Once this is over, the sensor changes over and asks for the entry of the clock time.

- 1.) Change the sensor over to learning mode operation and actuate the learn key at the receiver once shortly → The lamp at the receiver flashes red for max. 30 seconds. If no sensor is assigned by way of a learning procedure within this time, the lamp stops flashing and changes back to its initial state.
- 2.) Press the  key at the sensor once shortly → The lamp at the receiver flashes red for approx. 10 seconds. Once this time is over, the lamp at the receiver stops flashing red and lights green permanently. The radio link has been established successfully.

Once the learning procedure was performed correctly, the pilot lamp on the radio temperature actuator shows green for approx. 1 hour. The control system is active now. Regarding all other indications on the radio temperature actuator, please refer to the section „luminous indications“ contained in the operating instructions generated for this device. After placing the radio temperature actuator in the room to be controlled, the radio link must be rechecked again for correct functioning. To ensure this, the pilot lamp on the radio temperature actuator should be checked again if it shows green for approx. 1 hour as described hereinbefore. In the event the required radio link is interrupted, the lamp shows red after approx. 5 minutes. The green lamp extinguishes 1 hour after the successful execution of the learning procedure and indicates thus that the system operates correctly.

## 12. Adjustment functions J.7 ... J.12 "craftsman mode" J.6 → then and

**Caution!** Control settings can be made within the limits of these adjustment functions that may only be performed by a qualified heating specialist or an expert electrician. The settings made while operating in this mode cannot be

reset via the reset function and have to be made knowingly, therefore. Clear proof that any such settings have been made by one person only is thus ensured. The activation of the craftsman mode takes place while operating within the normal adjustment mode (see section 3.).

This is enabled only if „J.6“ is being indicated on the display. After that, press the key  first and then the key  shortly: the first adjustment function available in craftsman mode (J.7) is being displayed now. After activation of the craftsman mode, all 12 adjustment functions can be selected by means of the  and  keys. Actuating the key  enables to cancel the craftsman mode at any time. If no such selection has been made, the craftsman mode is terminated all automatically 2 minutes after the last keystroke was made. Entries will be imported only after confirmation with the  key. After termination of the program entry function, the display changes again back to the previously indicated operating display.

### 12.1 J.7 Temperature unit °C or °F

The system enables to display the temperatures in the units Celsius or Fahrenheit (factory setting: °C).

### 12.2 J.8 Valve and pump protection function ON/OFF

The valve and pump protection function serves to prevent the valve seat and/or the pump from corroding up during longer stop times. Whenever warm-water heating systems are to be controlled, it is recommended to activate the valve protection function. The radio room temperature sensor transmits each Monday within the timeframe from 11.00 to 12.00 o'clock a special signal to all assigned receivers or channels. This transmission takes place independent of the number and types of the assigned radio sensors. The assigned radio temperature actuator (receiver) actuates, upon the receipt of this signal, the related valve or triggers, at each time, the pump throughout 5 to 12 minutes.

ON  
OFF (factory setting)

### 12.3 J.9 Self-learning function ON/OFF

The self-learning function serves for the autonomous attaining of the comfort temperature at the adjusted time. The antedated point at which the system switches from ECO over to comfort temperature sets itself all autonomously and is being indicated by a blinking shift segment (“shiftable heating stop”). Depending on the calorific output and the prevailing outside temperature, the switchover point will vary.

ON (factory setting)  
OFF

### 12.4 J.10 Entry of the ECO temperature in dependence on the set value and entry as absolute value

The adjustment step J.11 serves to adapt the display and entry options to a heating system. The entry of the ECO temperature as absolute value is possible only if this adaptation has been made. The entry of the ECO temperature in the condition as delivered (factory setting) takes place as set value-dependent value during operation in heating mode -1° ... -6° (heating OFF) and temperature increase during operation in cooling mode 1° ... 6° (cooling OFF). The set value-dependent entry of the ECO temperature is indicated by the number „1“ and its entry as absolute value by the number „2“.

### 12.5 J.11 Adaptation of the display and entry options to the temperature equalization system to be controlled: heating system/heating & cooling system/cooling system

This adjustment step enables to adapt the display and entry options to the existing temperature equalization system (dynamic menu). No ECO cooling temperature or time can for example be entered if adapting them to a heating system. The display and entry options have been factory preset to a heating system. If adapting the device to a cooling or heating & cooling system (climate conditioning) the display and entry options of the clock-controlled radio sensor have to be adjusted accordingly. The following letter and symbol combinations are being displayed to indicate the corresponding selection: H and  (for heating), C and  (for cooling) and HC and  (for heating & cooling (climate conditioning)).

### 12.6 J.12 Correction function for the adaptation of the actual value recording to the room temperature (± 5K) (indication ± 5.0°C)

This correction function serves for the adaptation of the actual value recording to the room temperature (objective: set value scale / actual value indication = room temperature). This adaptation is always required whenever a permanent and unchanging affection of the radio room temperature sensor through foreign heat or cold sources is unavoidable. If, for instance, the radio room temperature sensor is influenced by a foreign heat source, a room temperature will result that is cooler than the one adjusted with the set value adjusting button. The correction of the actual value recording can take place in 0.1K steps.

#### Example in case the sensor is affected by a foreign heat source:

Assumption: A room temperature of 20°C occurs at an initially indicated and adjusted set temperature of 22°C. In order to attain a room temperature of 22°C at a set value setting of 22°C, the actual value correction function must subtract the necessary difference of 2K → subtractor: -2.0°. Based on this computing operation, the radio room temperature sensor corrects the actually measured set value by a value of -2K, which results in an increase of the room temperature to 22°C → set value scale / actual value indication = room temperature.

#### Example in case the sensor is affected by a foreign cold source:

Assumption: A room temperature of 24°C occurs at an initially indicated and adjusted set temperature of 22°C. In order to attain a room temperature of 22°C at a set value setting of 22°C, the actual value correction function must add the necessary difference of 2K → augmenter: +2.0°. Based on this computing operation, the radio room temperature sensor corrects the actually measured actual value by a value of +2K, which results in the lowering of the room temperature to 22°C → set value scale / actual value indication = room temperature.

## 13. Control of the radio link for correct device assignment and functional check

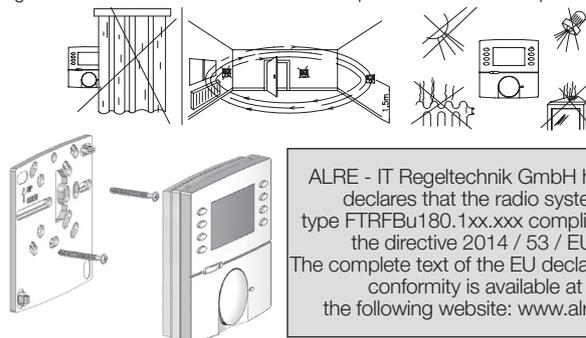
This function enables to check if the radio room temperature sensors have been assigned correctly to the different radio room temperature actuators. The detection of mistakes at a later point is thus facilitated. → Trigger a learning procedure at the radio room temperature sensor (transmitter) → The lamp at the sensor flashes red while doing so. Once the lamp at the radio room temperature actuator (receiver) starts flashing green, the radio room temperature sensor has been correctly assigned to it and the radio link established.

## 14. Accessories

JZ-18 – adapter plate, suited for use as element for the wall mounting  
MRCOA-014.201 – plug in wireless repeater

## 15. Mounting

The FTRFBu should, for practicability reasons, be mounted on an internal wall opposite of the related heater in a height of 1.5 meters above floor level using a double adhesive tape or using a type JZ-18 wall fixture if mounting on a papered wall surface is required. The subsurface must be dry and exempt from dust and/or grease and be plane and able to bear the load of the device. Placing the device on tables, shelves or cupboards is not advisable since possibly existing unfavourable air flows or the influence of foreign heat sources (e.g. warm bodies of human beings, devices, candles, solar radiation, etc.) might affect the functioning of the device in this case. An adhesive strip is included in the scope of delivery.



## 16. Technical data

Supply voltage:

Battery, 2x or 3x micro AAA.

Battery life:

**Caution!** Do not use accumulators!  
Approx. 3 years. Actuating the key very frequently will reduce the lifetime of the battery used for backlighting. **Please note:** Replace batteries at least every 5 years!

Temperature sensor:

internal type

Setting range:

5 ... 30°C

Indicating range:

0 ... 45°C

Sensor tolerance:

approx. ±1K

Setting scale:

°C scale

Transmit frequency:

868.3 MHz

Radio transmission range:

line of sight (150 m), up to 30 m inside of buildings. Note Item 9!

Admissible ambient temperature:

-10 ... +50°C

Admissible storage temperature:

-10 ... +50°C

Admissible air moisture:

max. 95% RH, non condensing

Housing design:

Berlin 3000

Housing material and colour:

plastic (ABS), pure white (similar to RAL9010)

Protection class:

III

Degree of protection:

IP30

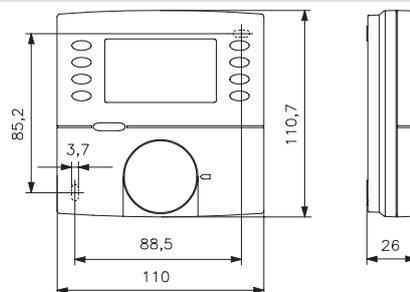
Mounting method:

by adhesive strips or by means of a wall bracket

Energy efficiency class:

I (contribution to seasonal space heating energy efficiency 1 %)

## 17. Dimensioned drawing



## 18. Warranty

The technical data specified herein have been determined under laboratory conditions and in compliance with generally approved test regulations, in particular DIN standards. Technical characteristics can only be warranted to this extent. The testing of the device with regard to the qualification and suitability for the client's intended application or the use under service conditions shall be the client's own duty. We refuse to grant any warranty with regard thereto. Subject to change without notice.

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