

**Attention:**

- **Electrical equipment must be installed and fitted by qualified electricians only and in strict observance of the relevant accident prevention regulations.**
- **Failure to observe any of the current regulations and the instructions set out below may result in fire and in other hazards.**

1. Overview

The present instructions are applicable to Berker touch sensors with room temperature controller and display (in the following text referred to as "RT touch sensor") in 2-key, 3-key and 5-key design.

1.1 Functional description

The RT touch sensor combines the functions of touch sensor, room temperature controller and room temperature timer clock in the same housing, thus permitting the control of many different functions in a building. The touch sensor functions are dependent on programming and on the other devices in your EIB installation.

The RT touch sensor is adapted to your individual needs and to the functions of the building. Functioning and operation of the touch sensor should be agreed between the user and the electrical fitter.

Display functions

- Room temperature and/or outside temperature and reference temperature value
- Simple and fast adaption of the room temperature
- Day of the week and time of day (only with EIB DCF77 clock)
- Adaptation of the reference temperature values for different operating modes
- Local programming of the room temperature timer clock

Function keys

- Switching and dimming of lighting
- Opening/closing and positioning of blinds and shutters
- Recalling and storing of 8 light scenes
- Transmitting temperature and brightness values
- Defining operating modes for the room temperature controller
- Activating/deactivating the room temperature timer clock

LED functions

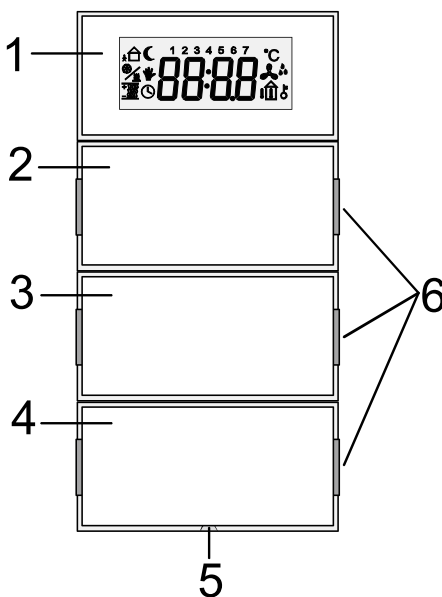
- Status display or display of pressed key
- LED on or off

1.2 Control and display elements

The controls of the device are discussed below based on the 3-key model.

The control elements are arranged horizontally and consist of a right and a left key.

Control element overview:



- 1 Display keys
 - setting of values (e.g. reference temperature value)
 - programming of the room temperature timer clock (see chapter 4)
- 2...4 Function keys
 - pushbutton and rocker-button functions (switching, dimming, shutter, etc.)
- 5 Operation LED (white)
 - indication of ready-for-operation state (programmable)
- 6 Status LED (red)
 - display of status or of pressed key

Touch sensor with room temperature control and display

2-key Order no. 7566 27 xx

3-key Order no. 7566 37 xx

5-key Order no. 7566 57 xx

Operating- and Fitting Instructions



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2. Operation

2.1 Function keys

Switching and value transmitter functions can be controlled with the keys working in the rocker (right/left press) or pushbutton (center press) mode. The switching response is freely programmable.

In the dimming and shutter control functions, the touch sensor distinguishes between a brief and a long press of the keys:

- Press a key briefly
 - to switch the lighting (switching, dimming function).
 - to control shutter movements (shutter function).
- Press a key long
 - to dim the lighting (dimming function). Dimming stops when the key is released (adjustable).
 - to move shutters (shutter function). The move command remains active until the shutter reaches the limit stop. Press the key briefly to stop the shutter when it is moving.

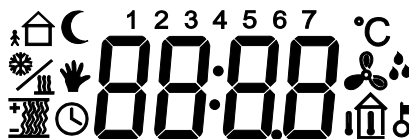
2.2 Display keys and room temperature controller

The room temperature controller is operated with the display control keys and via the bus. The following types of actuation must be distinguished:

- Press on a single display control key:
 - selects or changes a menu item
 - or
 - reduces/increases a value
- Press on both display control keys at a time: adopts set value (= "ENTER").
- Press on a function key: changes to the next higher menu without adopting the set value (= "ESC"); Pressing a function key repeatedly returns to the basic screen.
- No key activity for 20 seconds: set value is not adopted and change-back to the next higher menu or to the basic screen.

An overview of all possible menus can be found at the end of these instructions.

2.3 Display symbols



The symbols show the current status, operating modes etc.:

- "comfort" mode
 - "standby" mode
 - "night-time" mode
 - comfort mode extension ("night-time" mode)
 - "frost / heat protection" mode
 - comfort mode extension ("frost / heat protection" mode)
 - in the event of condensation in the cooling system, room cooling is switched off
 - reference value changes made with the display keys
 - operation of display keys, individual rockers or of complete device disabled
 - timer clock active or indicator for corresponding program function
 - reserved for future developments
 - heating on or indicator for corresponding program function
 - cooling on or indicator for corresponding program function
 - display of actual room temperature.
 - display of actual outside temperature (only with additional EIB outside temperature sensor).
- 1 ... 7 weekdays Monday thru Sunday

2.4 Basic screen

Depending on programming, the basic screen displays the following information in addition to the active operating mode indicator

21:30	current time of day (plus weekday),
19.7 °C	current room temperature
- 5.8 °C	current outside temperature
20.0 °C	current reference temperature

or a combination thereof (display changing in fixed intervals). The easiest way to get back to the basic screen is by pressing any of the function keys (several times if necessary).

2.5 Changing the room temperature

The room temperature reference value has been set for the different operating modes in accordance with your needs. This reference value can at any time be adapted to individual requirements.

Proceed as follows:

1. Press the right or the left display key while the display is in the basic screen. The "Reference value" display with the preset temperature value appears.



2. Press the right or the left display key to reduce or to increase the value (in steps of 0.5 °C).
3. The new value is adopted immediately. Confirmation is not required.
4. The display returns to the basic screen when a function key is pressed (= "ESC") or when the display keys have not been actuated for 20 s.



The 'Hand' symbol in the display indicates that the reference value has been changed.

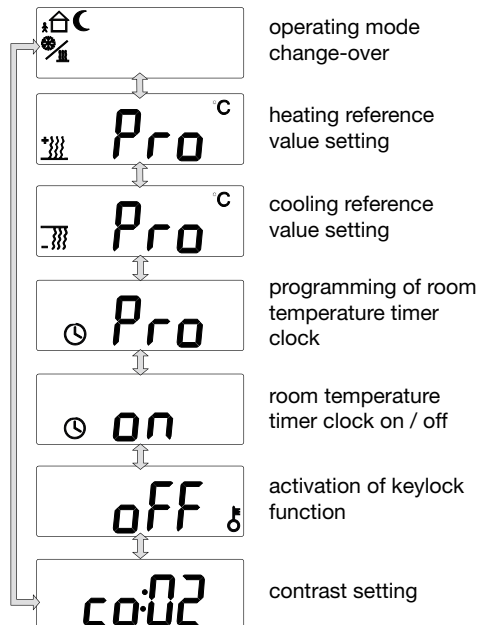
IMPORTANT INFORMATION

When the operating mode is changed (e.g. Comfort → Standby), the change of the reference value is either reset or transferred to the other operating modes depending on how the RT touch sensor is programmed.

2.6 Main menu

- Press both display keys while the display shows the basic screen (or also the reference value) until the display changes (= "ENTER"): the programming mode is activated and the first main menu is displayed.
- You now have 3 options, i.e. you can:
 - press the left or the right display key: change to next main menu
 - press both display keys (= "ENTER"): change to respective submenu (if enabled)
 - press a function key (= "ESC"): return to basic screen or to the next higher menu

The main menu has the following menu sequence:



End of input sequence: to return to the basic screen press any of the function keys – repeatedly, if necessary (= "ESC").

Deviations concerning functions and display

Depending on programming, only the menu levels needed for operation are available.

In this case, the operation is easier and more comfortable. Certain menu items described in the present instructions are then not existing in your individual menu structure.

Examples:

- Timer clock not needed: the "timer clock programming" and "timer clock activation" menus are not shown.
- Cooler not installed: the "cooling temperatures" menu is not shown.

3. Room temperature controller

Functioning of RT touch sensor

The RT touch sensor compares the actual room temperature to the preset reference temperature and determines whether heating valves have to be opened or closed. The preset temperature value depends on the currently active operating mode.

3.1 Operating modes

In practice, each heating system needs a certain time to bring a room that has cooled down back to the desired temperature. For this reason, the room temperature is lowered by only 2°C for a brief absence (e.g. for shopping) and for about 4 °C during the night.

The RT touch sensor offers different operating modes to cope with these cases:

- "Comfort" (normal daytime use)
- "Standby" (brief absence e.g. shopping)
- "Night" (only restricted use)
- "Frost/heat protection" (prolonged absence, e.g. for a several weeks' holidays)

The energy consumption of your heating system can be favourably influenced by your heating habits.

The heating characteristics are, however, also determined by the type of heating installed. Contrary to radiators, floor heating systems work with a lower water temperature, but with a large storage capacity and therefore react relatively slowly. In this case, the system should be switched over to daytime operation in good time. On the other hand, the system can of course be switched over to night-time operation relatively early as the floor is a good heat accumulator. The integrated room temperature timer clock can assist you with switching at the right time.

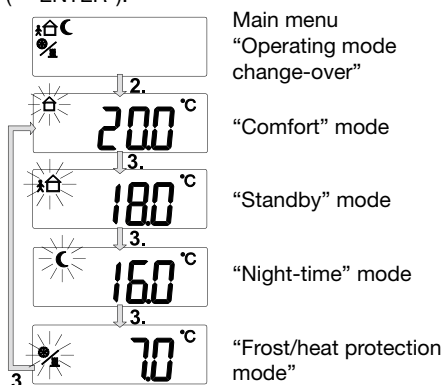
3.2 Changing the operating mode

The operating mode can be changed in different ways:

- manually (via menu structure)
- manually with correspondingly programmed function keys (also by other touch sensors)
- time-controlled by the integrated room temperature timer clock or by an external EIB timer clock

To change the operating mode manually, proceed as follows:

- Call up the main menus by pressing both display keys (= "ENTER") when the device displays the basic screen (or the reference value)
- When the operating mode change-over screen is displayed, press again both display keys (= "ENTER"):



- You now have three options:

- press both display keys (= "ENTER"): the indicated operating mode is activated – the device returns to the first main menu
- or
- press left or right display key: the device changes over to the next operating mode – then activation of the desired mode
- or
- press a function key: the device returns to the main menu

- Stop the input and switch back to the basic screen by pressing a function key (several times if necessary).

3.3 Enlarged operating modes

When the operating mode is changed over automatically by a timer clock (internal or external), the user might be interested in retaining the comfort mode for some time in spite of the mode change. For this case, the RT touch sensor offers the "comfort mode extension".

Contrary to the normal "comfort" mode, the comfort mode extension is time-limited.

- comfort mode extension "night" (e.g. watching TV longer than usual or unexpected visitors)
- comfort mode extension "frost/heat protection" (e.g. holiday start delayed)

The comfort mode extension is activated, for instance, with a "presence key" (function key defined as such) or automatically, for instance, by a presence detector.

After the end of the programmed delay (by the electrical fitter), the original operating mode "Night" or "Frost/heat protection" is restored.

3.4 Changing the reference temperature

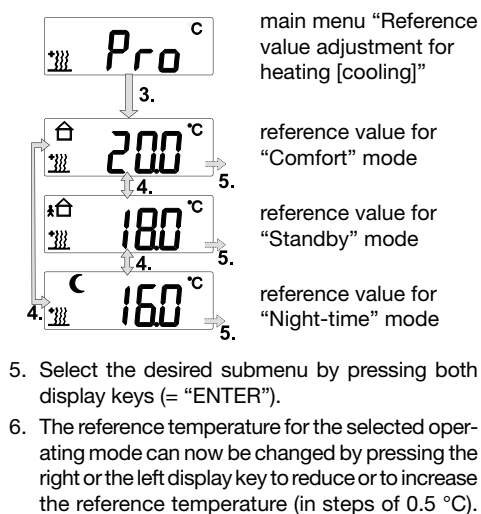
The reference temperature values defined in the operating modes can be adapted to your individual requirements.

IMPORTANT INFORMATION

- The procedure is the same for “heating” and “cooling” and therefore described only once.
- The reference value for “frost/heat protection” serves the purpose of protecting the line system and cannot be changed.

Proceed as follows:

1. Call up the main menu by pressing both display keys (= “ENTER”) when the sensor displays the basic screen (or the reference value).
2. Press one of the two display keys until the corresponding main menu “Reference value adjustment for heating [cooling]” is displayed.
3. Press both display keys (= “ENTER”).
4. In the following submenu, you can now select the operating mode the reference temperature of which you want to change. The operating modes are displayed in a fixed sequence: “Comfort”, “Standby” and “Night”.



7. You have two options:
 - To accept the change: press both display keys (= “ENTER”) to adopt the the new value.
 - To reject the change: press a function key (= “ESC”). The RT touch sensor quits the submenu.

If you want to change other reference values as well, select the menu again and perform the steps described.

4. Room temperature timer clock

For your personal comfort and for energy-saving purposes you can save up to 28 different switching times in the RT touch sensor to control the room temperature in up to 28 available memories.

Each memory location contains:

- the operating mode “Comfort”, “Standby”, “Night”
- selection of the weekday or a group of days as e.g. MON-FRI or SAT-SUN
- the switching time from 0:00 to 23:59

Example:

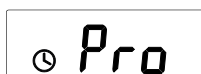
Week program for a one-person household

Day(s)	Time	Opmode	
MON-FRI	06:00 h	comfort	20 °C
MON-FRI	08:00 h	standby	18 °C
MON-FRI	15:00 h	comfort	20 °C
MON-FRI	21:30 h	night	16 °C
FRI	12:00 h	comfort	20 °C
SAT-SUN	07:30 h	comfort	20 °C
SAT-SUN	22:00 h	night	18 °C

4.1 Setting the room temperature timer clock

A certain number of switching times has already been stored in the sensor by your electrical fitter. To adapt these times to your personal requirements, proceed as follows:

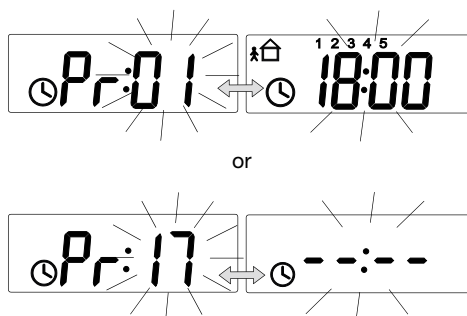
1. Call up the main menus by pressing both display keys (= “ENTER”) when the basic screen (or the reference value screen is displayed).
2. Press a display key until the corresponding main menu “Room temperature timer clock programming” appears.



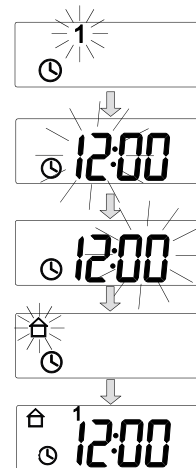
3. Press both display keys (= “ENTER”).

Select the memory location, weekday, switching time (hour, minute) and the operating mode in the submenu.

The number of the memory location and the programmed time are displayed alternately; when the memories are empty, the time display is blank.



4. Press a display key to change between the memories. Select the memory location by pressing both display keys (= “ENTER”)
5. Make the desired settings using the left or the right display key.



Selection of weekday (MON, TUE, WED SUN; MON-FRI, SAT-SUN, MON-SUN)

Setting the switching time (hour)

Setting the switching time (minute)

Selecting the operating mode (comfort, standby, night)

End of programming: display of settings made and return to memory locations

6. You have two options:
 - To accept the change: press both display keys (= “ENTER”) to adopt the new value.
 - To reject the change: press a function key (= “ESC”). The RT touch sensor quits the submenu.

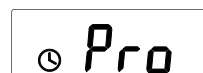
Repeat the procedure for other switching times.

IMPORTANT INFORMATION

- Weekdays are indicated by numbers (1-7 = MON-SUN).
- “CLR” means deletion of the currently active memory location (see chapter 4.2.)
- To execute the switching times, the timer clock must be started (see chapter 4.3).

4.2 Deleting an existing switching time

1. Call up the main menu by pressing both display keys (= “ENTER”) when the basic screen (or the reference value screen) is displayed.
2. Press a display key until the corresponding main menu “Room temperature timer clock programming” appears.



3. Press both display keys (= “ENTER”).
4. Press a display key to select the memory location to be deleted and confirm by pressing both display keys (= “ENTER”).
5. In the weekday selection: Press one of the two displays keys until “CLR” is displayed.



6. Press both display keys (= “ENTER”). The program memory is deleted.

4.3 Activating and deactivating the timer clock

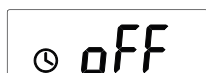
The room temperature timer clock can be activated and deactivated without changing its programming. This step does not affect a single switching time but influences all of the switching times of the timer clock.

Proceed as follows:

1. Call up the main menus by pressing both display keys (= "ENTER") when the basic screen (or the reference value screen is displayed).
2. Press one of the two display keys until the "Timer clock" symbol appears on display together with the words "on" or "off" indicating the current state of the timer clock:



activated:
all programmed times
are executed.



deactivated:
the current operating
mode remains active
until another mode is
selected manually.

3. The timer clock is switched off (or on) by pressing both display keys (= "ENTER"). The new state is adopted immediately.

5. Disabling the RT touch sensor

Operation of the RT touch sensor can be fully or partially disabled.

5.1 Keylock

The keylock function is intended as a protection against erroneous operation by children playing unattended in the room and activated and deactivated with the display keys. When keylock is active, all function keys are locked until the keylock function is deactivated.

1. Call up the main menus by pressing both display keys (= "ENTER") when the basic screen (or the reference value screen is displayed).
2. Press one of the two display keys until the "Key" symbol appears on display together with the words "on" or "off" indicating the actual state of the locking function:



keylock on:
operation not possible



keylock off: operation
possible

3. The keylock is switched off (or on) by pressing both display keys (= "ENTER"). The new state is adopted immediately.

IMPORTANT INFORMATION

An activated keylock function remains active when the bus voltage is switched off and on again ("Reset"). The keylock function is deleted when the sensor is reprogrammed.

5.2 Operation level – Disabling of menus

The menus themselves can be changed to a large extent. To make the operation easy and clear-cut while retaining at the same time the "depth" of the functions, menu settings can be disabled or enabled.



The key symbol on your display indicates that the sensor itself or individual functions are disabled.

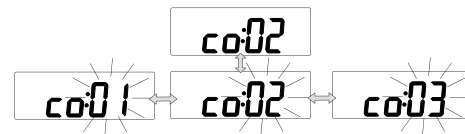
The menus are arranged in three levels of operation (see overview at the end of these instructions) which can be disabled independently.

- Level I: The reference temperature can be adapted to your requirements with the display keys.
 - no menus are accessible
- Level II: In addition to the reference temperature value you have access to the menus
 - Change of operating modes (see chapter 3.2)
 - Setting of the "Heating" temperatures (see chapter 3.4)
 - Setting of the "Cooling" temperatures (see chapter 3.4)
- Level III: You have access to all menus if activated in the software.

6. Setting the LCD contrast

To adapt the display to changing lighting conditions, the contrast can be adapted to your personal requirements.

1. Call up the main menus by pressing both display keys (= "ENTER") when the basic screen (or the reference value screen is displayed).
2. Press one of the two display keys until "co:" followed by the currently active contrast setting appears on display.



3. Press both display keys (= "ENTER"), the value on display starts flashing.
4. Press the left (right) display key to reduce (increase) the contrast. The new value is adopted immediately.
5. Terminate the setting procedure by pressing a function key.

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7.1 General system information

This device is a product of the *instabus*-KNX/EIB system and complies with KNX directives. Detailed technical knowledge obtained in *instabus* training courses is a prerequisite to proper understanding.

The functionality of this device depends on the software. Detailed information on loadable software and attainable functionality as well as the software itself can be obtained from the manufacturer's product database.

Planning, installation and commissioning of the unit is effected by means of KNX-certified software.

An updated version of the product database and the technical descriptions are available in the Internet at www.berker.de

7.2 Fitting location

The RT touch sensor measures the temperature in its surroundings. If the measured and the displayed temperature is to be the same as the temperature actually prevailing in the room, it is important that the air in the room must be able to circulate.

The temperature measurement can be incorrect, if:

- the RT touch sensor is covered up, e.g. by coats and jackets;
- the sensor is close to unfavourably arranged furniture (e.g. shelves);
- the RT touch sensor is exposed to a draught, e.g. close to doors;
- the RT touch sensor is hit by direct sunlight;
- heating or cooling appliances are operated in the immediate vicinity of the sensor.

For easy readability of the RT touch sensor display, fit the device at eye level. Choose the fitting location so as to prevent light from falling into and from being reflected by the sensor's display.

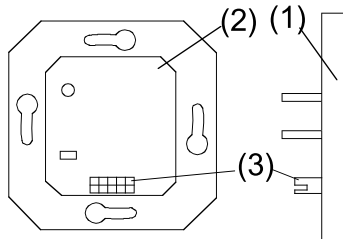
7.3 Fitting instructions

- For fitting, a flush-mounted bus coupling unit, order no. 7500 00 07, is needed.
- The 3-key and 5-key RT touch sensors project over the lower edge of the bus coupler and have an additional screw-hole at the bottom for fastening to the wall. Use the screw/plug set supplied with the device for fastening.
- The RT touch sensors of the S., B., and K. series are equipped with an anti-theft protection in the form of a locking screw retaining the touch sensor on the bus coupler. Use a screwdriver size 0 for this screw.
- The anti-theft protection and the additional screw-holes are accessible, if the inscription label is detached carefully from the corresponding key rocker. This can be done without any tools (fingernail).

7.4 Fitting

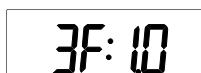
Proceed as follows:

1. Install the flush-mounted bus coupler into a flush-mounting box.
2. Assign the physical address (using the commissioning software).
3. Plug the touch sensor (1) into the flush-mounted bus coupler (2).
4. The two devices are then connected with one another via the user interface (3).



5. Immediately after plugging the device into the coupler, the ID code and the software version are displayed for a brief moment:

Example: 3-key RT touch sensor Version 1.0



before the predefined basic screen is displayed.

6. Attach the RT touch sensor to the bus coupler using the locking screw (and also the additional screw for the 3-key and 5-key touch sensors).

7.5 Advice on commissioning

- For programming, the RT touch sensor must be in place on the bus coupler.
- Adapt the touch sensor to the control loop to ensure precise temperature measurements. If necessary, perform a function check.
- It is possible that an alarm function reporting the withdrawal of the touch sensor from the coupler (anti-theft protection) is pre-programmed.
- Please note that after programming the bus coupler and the RT touch sensor form a "combination" and can therefore no longer be exchanged at random. Note the physical address and mark also the room and the location on both devices (important for future renovation work).

7.6 Removal

Loosen the safety screw before the removal and also the retaining screw at the bottom (with 3- and 5-key RT touch sensors).

7.7 Technical data

Power supply:	21–32 V DC from flush-mounted bus coupler
Power rating:	typically 150 mW
User interface:	2 x 5-pole male connector
Ambient temperature:	-5 ... +45 °C
Storage temperature:	-25 ... +70 °C
Type of protection:	IP 20
Safety class:	III

Troubleshooting

The table below is intended as a help for dealing with problems, if any.

Problem	Cause / Remedial action
No display screen	<ul style="list-style-type: none"> No bus voltage > call the electrical fitter if the bus voltage is absent for prolonged periods Device defective > replace
Change of opmode via the menu not possible	<ul style="list-style-type: none"> Change probably prevented by open window with window contact or presence detector (forced position)
Press on function keys shows no reaction	<ul style="list-style-type: none"> Undo activated key-lock function (chapter 6) If necessary, have the key-lock function deactivated by the electrical fitter
Menu or submenu not displayed	<ul style="list-style-type: none"> The corresponding functions are not enabled or not programmed > ask the electrical fitter to enable or to program the corresponding functions Enlarge the level of operation
"Pd" or "Fd" appears on display	<ul style="list-style-type: none"> Operation not possible during programming of the touch sensor
"nP" appears on display, function keys without response	<ul style="list-style-type: none"> Programmed touch sensor probably plugged into another („wrong“) bus coupler > check device combinations or have them rectified
Wrong time of day displayed	<ul style="list-style-type: none"> Time of system clock needs resetting Functions executed with slight time deviations > resynchronize with system clock
Sensor displays "--:--" instead of the time	<ul style="list-style-type: none"> Synchronization failed Functions executed with slight time deviations > resynchronize with system clock
Programmed switching times not executed.	<ul style="list-style-type: none"> Timer clock programmed, but not activated. Activate the timer clock (chapter 5.3)

Assignment of keys

Note the key functions of the RTR touch sensor:

Control element	Function / LED / Actuation / lock
Display keys.. - left/right key ..	Function of keys varies with situation Operation of room temperature controller
Key 1 left / LED..... - Keypress.....	<input type="checkbox"/> brief <input type="checkbox"/> long <input type="checkbox"/> locked
Key 1 right / LED .. - Keypress.....	<input type="checkbox"/> brief <input type="checkbox"/> long <input type="checkbox"/> locked
Key 2 left / LED..... - Keypress.....	<input type="checkbox"/> brief <input type="checkbox"/> long <input type="checkbox"/> locked
Key 2 right / LED .. - Keypress.....	<input type="checkbox"/> brief <input type="checkbox"/> long <input type="checkbox"/> locked
Key 3 left / LED..... - Keypress.....	<input type="checkbox"/> brief <input type="checkbox"/> long <input type="checkbox"/> locked
Key 3 right / LED .. - Keypress.....	<input type="checkbox"/> brief <input type="checkbox"/> long <input type="checkbox"/> locked
Key 4 left / LED..... - Keypress.....	<input type="checkbox"/> brief <input type="checkbox"/> long <input type="checkbox"/> locked
Key 4 right / LED .. - Keypress.....	<input type="checkbox"/> brief <input type="checkbox"/> long <input type="checkbox"/> locked
Key 5 left / LED..... - Keypress.....	<input type="checkbox"/> brief <input type="checkbox"/> long <input type="checkbox"/> locked
Key 5 right / LED .. - Keypress.....	<input type="checkbox"/> brief <input type="checkbox"/> long <input type="checkbox"/> locked

Guarantee

We accept the guarantee in accordance with the corresponding legal provisions.

Please return the unit postage paid to our central service department giving a brief description of the fault:

Berker GmbH & Co. KG

Abt. Service Center

Klagebach 38

D-58579 Schalksmühle

Germany

Telephone: +49 (0) 23 55 / 90 5-0

Telefax: +49 (0) 23 55 / 90 5-111

We will be pleased to deal with any queries you may have.

BERKER-HOTLINE

instabus EIB Telefon +49-(0)23 55-905-203

Please hand these operating instructions to your customer for safekeeping after installation.

For more information:

Berker GmbH & Co.KG

Postfach 1160

58567 Schalksmühle/Germany

Telefon +49 (0) 23 55 / 90 5-0

Telefax +49 (0) 23 55 / 90 5-111

www.berker.de

B.

Berker Schalter und Systeme

