#### Safety warnings



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



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## 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.:

- "standby" mode
  - "night-time" mode

comfort mode extension ("night-time" mode)

\*frost / heat protection" mode

protection" mode) comfort mode extension ("frost / heat

- 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 rock-Q ers 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



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).
- 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  $\rightarrow$  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 pratice, 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) 台

ŧĤ "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:

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



Main menu "Operating mode change-over"

"Comfort" mode

"Standby" mode

"Night-time" mode

"Frost/heat protection mode"

- 3. 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
- 4. Stop the input and switch back to the basic screen by pressing a function key (several times if necessarv).

#### 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:

- Call up the main menu by pressing both display keys (= "ENTER") when the sensor displays the basic screen (or the reference value).
- Press one of the two display keys until the corresponding main menu "Reference value adjustment for heating [cooling]" is displayed.
- 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".



main menu "Reference value adjustment for heating [cooling]"

reference value for "Comfort" mode

reference value for "Standby" mode

reference value for "Night-time" mode

- 5. Select the desired submenu by pressing both display keys (= "ENTER").
- 6. The reference temperature for the selected operating mode can now be changed by pressing the right or the left display key to reduce or to increase the reference temperature (in steps of 0.5 °C).



- 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:

- 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 alternatingly; when the memories are empty, the time display is blank.



- 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.



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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 selction: Press one of the two displays keys until "CLR" is diplayed.



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).
- Press one of the two display keys until the "Timer clock" symbol appears on display together with the words "on" or "off" indicating the currentl 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).
- 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

 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 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.

- 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.



- 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.



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!

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

For easy readibility of the RTR 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

- The 3-key and 5-key RTR 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 RTR touch sensors of the S., B., K and Q. 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 PH0 or PH00.
- The anti-theft protection and the additional screw-holes are accessible, if the inscription label is detached carefully from the corresponding key rocker. Normally, no additional tools are required for this (fingernail).

## 7.4 Mounting of touch sensors without integrated bus coupler

For fitting, a flush-mounted bus coupler type, order no. 7504 00 01, is needed.

- 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).



 Attach the RTR 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 Mounting of touch sensors with integrated bus coupler



- 1. Mount the support ring (4) in the right position on a UP device socket (DIN 49073). The dismantling lock (5) must be at the bottom right.
- 2. Using a bus connection terminal, connect the bus to the rear of the touch sensor.
- 3. Switch the bus voltage on.
- Assign a physical address (using the commissioning software). There is a programming lever (9) for this on the rear side of the device. Using a small screwdriver, pull the lever towards the underside of the housing so that the lever turns red. When the physical address has been issued, the programming lever goes dark.



- 5. Switch the bus voltage off again.
- 6. Attach both the touch sensor and the frame onto the support ring until it locks.
- 7. If necessary, release the labelling panel (8) from the lower rocker.
- 8. Screw the securing screw (7) tight. This is premounted in the round opening (6).
- 9. Clip the labelling panel back onto the touch sensor.

#### 7.6 Advice on commissioning

- For programming, touch sensors without bus couplers must be attached to the bus coupler.
- Please note that after programming the bus coupler and the RTR touch sensor form a "combination" and can therefore no longer be exchanged at random.
- Immediately after plugging the device into the coupler, the ID code and the software version are displayed for a brief moment: Example: 3-key RTR touch sensor, version 1.0



Afterwards the predefined basic screen is displayed.

- Adapt the touch sensor to the control loop to ensure precise temperature measurements. If necessary, perform a function check.
- Note down the physical address, possibly also the room/location code on the touch sensor

#### 7.7 Removal

- With touch sensors with integrated bus couplers, switch the bus voltage off. Otherwise the device may be damaged.
- Loosen the safety screw before the removal and also the retaining screw at the bottom (with 3- and 5-key RTR touch sensors).
- There may be an alarm function, which signals the removal of the touch sensor (theft protection). Deactivate this before dismantling.

#### Troubleshooting

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

Problem	Cause / Remedial action	
No display screen	<ul> <li>No bus voltage &gt; call the electrical fitter if the bus voltage is absent for prolonged periods</li> <li>Device defective &gt; replace</li> </ul>	
Change of opmode via the menu not possible	Change probably prevented by open window with window contact or presence detector (forced position)	
Press on function keys shows no reaction	<ul> <li>Undo activated key-lock function (chapter 6)</li> <li>If necessary, have the key-lock function deactivated by the electrical fitter</li> </ul>	
Menu or submenu not displayed	<ul> <li>The corresponding functions are not enabled or not programmed &gt; ask the electrical fitter to enable or to program the corresponding functions</li> <li>Enlarge the level of operation</li> </ul>	
"Pd" or "Fd" appears on display	Operation not possible during programming of the touch sensor	
"nP" appears on display, function keys without response	<ul> <li>Programmed touch sensor probably plugged into another ("wrong") bus coupler &gt; check device combinations or have them rectified</li> </ul>	
Wrong time of day displayed	<ul> <li>Time of system clock needs resetting</li> <li>Functions executed with slight time deviations &gt; resynchronize with system clock</li> </ul>	
Sensor displays ":" instead of the time	<ul> <li>Synchronization failed</li> <li>Functions executed with slight time deviations &gt; resynchronize with system clock</li> </ul>	
Programmed switching times not executed.	Timer clock programmed, but not activated. Activate the timer clock (chapter 5.3)	

#### Assignment of keys

Note the key functions of the RT 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 Key 1 right / LED - Keypress	□ brief □ brief	□ long □ long	□ locked
Key 2 left / LED - Keypress Key 2 right / LED - Keypress	□ brief □ brief	□ long □ long	□ locked
Key 3 left / LED - Keypress Key 3 right / LED - Keypress	□ brief □ brief	□ long □ long	□ locked
Key 4 left / LED - Keypress Key 4 right / LED - Keypress	□ brief □ brief	□ long □ long	□ locked □ locked
Key 5 left / LED - Keypress Key 5 right / LED - Keypress	□ brief □ brief	□ long □ long	□ locked □ locked

#### **Technical data**

Power supply
Power rating
User interface

Ambient temperature Storage temperature Type of protection Safety class 21–32 V DC typically150 mW 2 x 5-pole male connector -5 ... +45 °C -25 ... +70 °C IP 20

#### Warranty

We reserve the right to make technical and formal changes to the product in the interest of technical progress.

Our products are under guarantee within the scope of the statutory provisions.

If you have a warranty claim, please contact the point of sale or ship the device postage free with a description of the fault to the appropriate regional representative.

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

THE KNX HOTLINE Phone +49 6842 945 9705

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

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#### **Operation overview**



ESC

ENTER