

 **Dimplex**

Operating Instructions for Universal Temperature Controller



BRTU 101 UN

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1. Safety information

Expert electricians only may open this device in due compliance with the wiring diagram shown in the housing cover / on the housing / represented in the corresponding operating instructions. All expert electricians charged with the execution of such works must comply with the relevant safety regulations currently operative and in force. **Caution:** The operation of the controller in the vicinity of other devices that do not comply with the EMC directives may affect its functions. 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.

2. Application / functional description / emergency operation

The controller described in these instructions is provided for flush installation and has been specially devised for the time-dependent control of the temperatures in individual rooms or of the temperatures produced by electric or warm-water heating systems (systems with normally closed valve actuators). The device can be used as floor or as room temperature controller with additional floor temperature controller function. Operation in emergency mode is triggered if the internal or external sensor is defective. The same applies if no sensor has been connected when using the device as room temperature controller with additional floor monitoring function and also when using it as floor temperature controller. An error message appears on the display and an indicator lamp starts blinking red to indicate this condition. During operation in emergency mode a fixed 30% duty cycle is being maintained to prevent the related room from cooling down thoroughly and protect it against frost damage. The activation time divides into a 3-minute ACTIVE and a 7-minute OFF time.

3. Operating instructions

The device is equipped with 4 touch keys, all of which have been marked by the symbol \circ . The functions allocated to them may vary in dependence on the operation requirements. The related function is being indicated on the display which exists above the corresponding keys. A special protective function helps prevent an inadvertent activation of the touch keys. This function is activated 20 seconds after any of the touch keys has last been activated. Actuating any of the touch keys deactivates this function again for 2 seconds.

4. Control operation



Temporary set temperature setting
see 4.1

Selection of the operating mode
see 4.2

Main menu
see 5.

Temporary set temperature setting
see 4.1

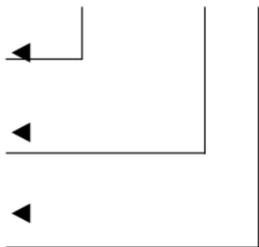
4.1 Temporary set temperature setting



Set temperature - 0.5K

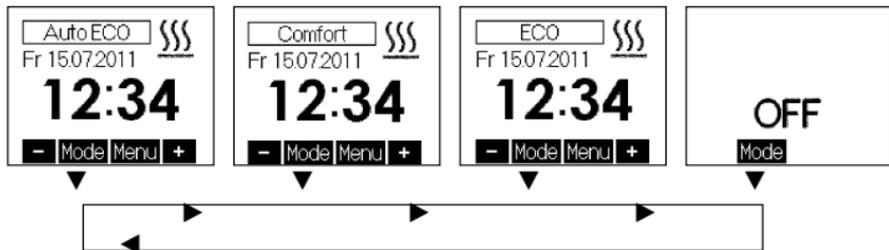
Acquisition of the values
Return to normal control mode

Set temperature + 0.5K



If no key has been activated within a period of approx. 5 seconds, the system returns to normal control mode again. The changed temperature value is being taken over and imported. The adjusted set temperature continues to be effective until the moment the operating mode is changed, no matter if changing manually or automatically after triggering by the switch clock.

4.2 Selection of the operating mode

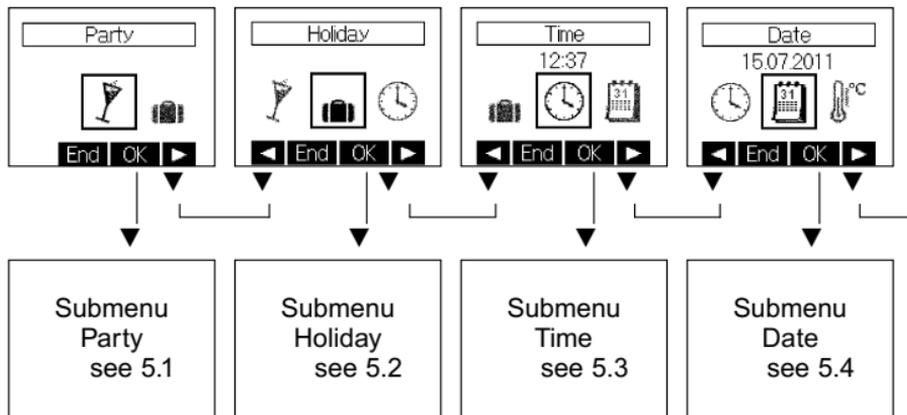


Actuating the touch key “Mode” allows to change the operating mode in the order shown below:

- Automatic mode (in compliance with the related weekday mode settings)
- Comfort mode, permanently
- ECO mode, permanently
- Operating mode “OFF”

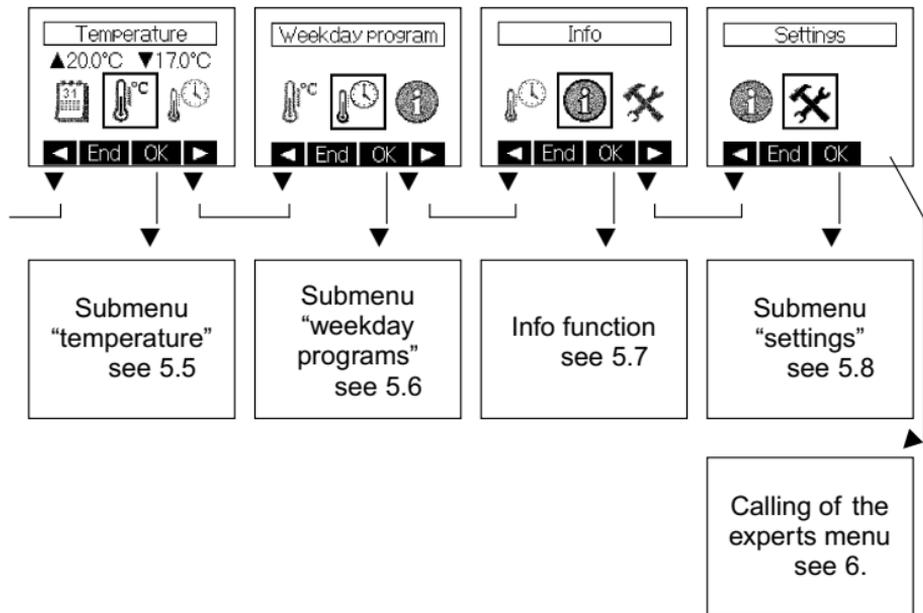
In “OFF” mode, the controller activates the heating when underrunning a temperature level of approx. 5°C and deactivates the operations when exceeding a temperature level of approx. 6°C. This antifreezing function helps prevent rooms from cooling down thoroughly and protects against the occurrence of frost damage.

5. Main menu



Actuating the key **End** terminates the main menu.

5. Main menu



5.1 Submenu “Party”

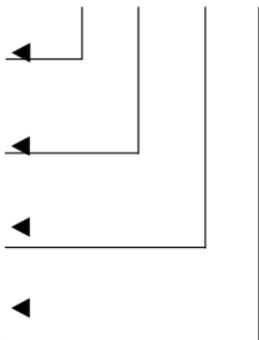


Party end – 15 minutes

Termination of data entry,
returning to the main menu

Start of the “Party” function

Party end + 15 minutes



Actuating the **OK** touch key starts the party function. Once the pre-adjusted time has been attained, the system switches automatically back to the previous operating mode. Actuating the touch key **End** cancels the party function at any time. While operating in party mode, all control operations are performed in dependence on the actually adjusted comfort temperature.

5.2 Setting of the holiday data and entry of the month in which holidays begin



Month in which holidays begin – 1

Termination of the data entry,
returning to the main menu

Changing over to the day on which
holidays begin

Month in which holidays begin + 1

5.2 Entry of the day on which holidays begin



Holiday from 
Day
14.12
- End OK +

Day on which holidays begin – 1

Termination of the entry,
returning to the main menu

Changing over to the month in which
holidays end

Day on which holidays begin + 1

5.2 Entry of the day on which holidays end



Holiday until 

Month

15.12

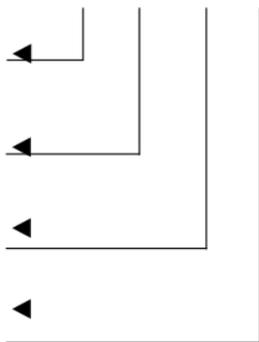
- End OK **+**

Day on which holidays end - 1

Termination of the entry,
returning to the main menu

Changing over to the day on which holidays end

Day on which holidays end + 1



5.2 Entry of the day on which holidays end



Day on which holidays end - 1

Termination of the entry,
returning to the main menu

Changing over to the holidays temperature menu

Day on which holidays end + 1

5.2 Entry of the “holiday temperature”

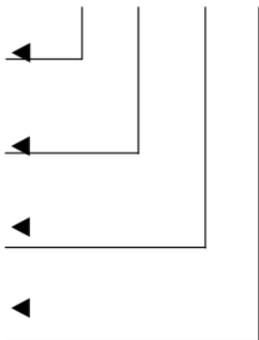


Holiday temperature – 0.5K

Termination of entries,
returning to the main menu

Import of all values,
returning to the main menu

Holiday temperature + 0.5K



Already existing holiday data can be cancelled by simply changing, via the main menu, over to the holiday submenu. Actuating the key **End** allows to leave this menu.

Factory setting: 17°C

5.3 Setting of the time Entry of hours

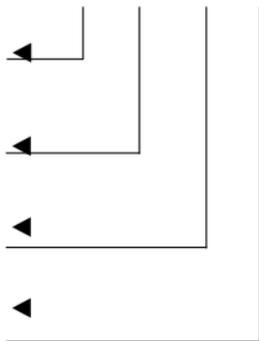


Hour - 1

Termination of entries,
returning to the main menu

Import of the selected value,
changing to the minute entry display

Hour + 1



5.3 Entry of minutes

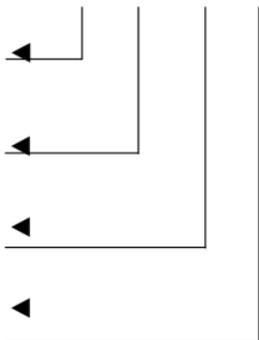


Minute - 1

Termination of entries,
returning to the main menu

Import of the selected value,
returning to the main menu

Minute + 1



Actuating the **OK** key after a change of the minutes, allows to reset the seconds entry to "0".

5.4 Setting of the date Entry of the year

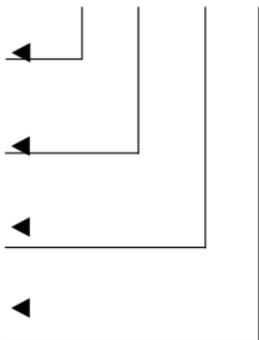


Year -1

Termination of entries,
returning to the main menu

Import of the selected value,
changing to the month entry display

Year + 1



5.4 Entry of the month

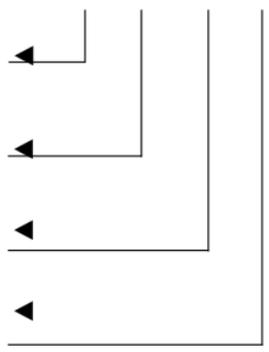


Month - 1

Termination of entries,
returning to the main menu

Import of the selected value,
changing to the day entry display

Month + 1



5.4 Entry of the day



Date 31

Day

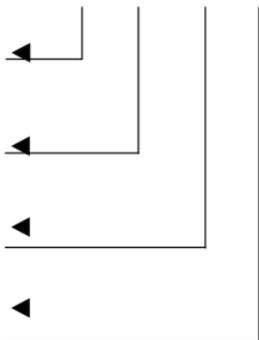
14.12

Day - 1

Termination of entries,
returning to the main menu

Import of the selected value,
returning to the main menu

Day + 1



5.5 Setting of the set temperatures

Entry of the comfort temperature

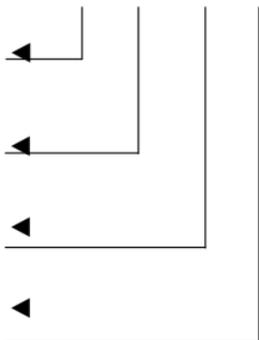


Comfort temperature – 0.5K

Termination of entries,
returning to the main menu

Import of the selected value,
changing to the ECO temperature entry display

Comfort temperature + 0.5K



If using the device as floor temperature controller, the desired floor temperature can be set using this menu. The same applies in regard to the setting of the desired room temperature when using it as room temperature controller.

Factory setting: 20°C

5.5 Entry of the ECO temperature

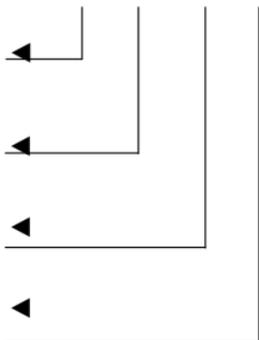


ECO temperature – 0.5K

Termination of entries,
returning to the main menu

Import of the selected value,
returning to the main menu

ECO temperature + 0.5K



The maximum adjustable ECO temperature value corresponds to the comfort temperature value – 1K.

Factory setting: 17°C

5.6 Entry of the weekday programs Selection of the weekday



Weekday program

Mo	Tu	We	Th	Fr
Sa	Su			

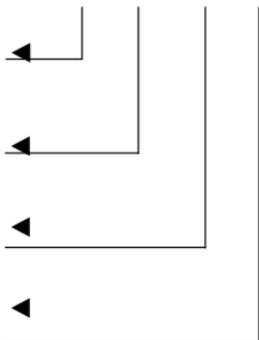
◀ End OK ▶

Weekday backward

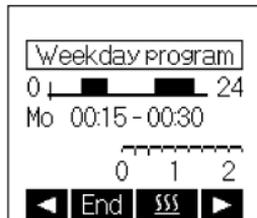
Termination of entries,
returning to the main menu

Changing to the display for the entry
of comfort and ECO times

Weekday onward



5.6 Selection of the comfort or ECO times

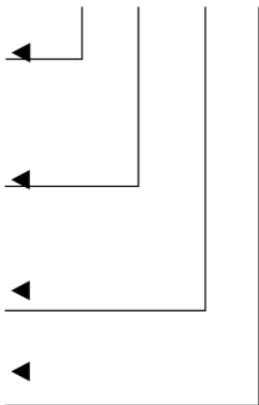


Position – 15 minutes

Termination of entries. If no changes have been made, the system returns to the display for the selection of the weekday. Otherwise, it changes over to the entry confirmation display.

Shifting between comfort or
ECO time period

Position + 15 minutes



Comfort times:

Factory settings valid from Monday to Friday: 05:00 ... 9:00 / 16:00 ... 22:00

Factory settings valid from Saturday to Sunday: 06:00 ... 22:00

5.6 Confirmation of entries



Termination of entries,
returning to the weekday selection display

Storing of the entries
Change to the menu enabling the copying
of entries with respect to other weekdays

5.6 Import of the entries made with regard to other weekdays



Import for

Mo-Fr		Sa-Su		
Mo	Tu	We	Th	Fr
Sa	Su			

◀ End OK ▶

Selection backward

No import of entries,
returning to the weekday selection display

Import of entries with respect to the
selected weekday(s).

Selection forward

5.7 Information



Returning to the main menu

An L-shaped arrow originates from the bottom right corner of the "Info" dialog box and points horizontally to the left, ending at the right side of the "Returning to the main menu" box.

5.8 Settings



Selection downward

Termination of entries,
returning to the main menu

Activation or deactivation of the
selected function

Selection upward

5.8 Settings



The following functions are available:

1. Keylock

The keylock is activated 2 minutes after actuating any of the touch keys. The key icon appears on the display to indicate this locked state. The touch keys can be reactivated by actuating and holding any of the keys depressed for 10 seconds.

2. Automatic change between daylight saving and standard time

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 to 3.00 o'clock a.m. on the last Sunday in October (CEST) each year (directive 2000/84/EG of the European Council and Parliament). The temperature controller changes the time all automatically at these dates. The automatic change between 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.

3. Valve and pump protection function

The valve and pump protection function serves to prevent the valve seat and/or the pump(s) from corroding up during longer stop times. If using the device for the control of warm-water heating systems, activating the valve protection function is recommended. After activation of the valve and pump protection function, the controller actuates the valve(s) or triggers a heating pump every Monday at 11.00 o'clock a.m. over a 5 minute time period. The

valve and pump protection function is rendered active only if no heating operations were executed within the last week. Unnecessary heating during the heating season is thus avoided, thereby leaving the control system unaffected.

4. Self-learning function

The self-learning function serves for the autonomous attaining of the comfort temperature at a preset time. The antedated point at which the system switches from ECO over to comfort temperature sets itself all autonomously. Depending on the calorific output and the prevailing outside temperature, the heating time will vary.

5. Backlighting of the display

The length of time during which the display backlight is on, can be selected as follows:

1. Backlight during operation plus 10 seconds after the last actuation of any of the touch keys;
2. Additional backlight during operating times in comfort and also in party mode;
3. Permanent backlight.

6. Display indications

If configuring the device for use as floor temperature controller, only the time indication is active.

If the HTRRUu 210.021 has not been configured for use as floor temperature controller, the operator can select between the following indications:

1. Time;
2. Temperature;
3. Time & temperature (alternating).

6. Experts menu

Depressing the right touch key and keeping it depressed for 10 seconds after accessing the “settings” submenu (see page 11) from the main menu, enables to call the experts menu.

Caution! This menu enables to make control settings 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 such settings have been made by one person only is thus ensured.

The following settings are available:

1. Selection of controller configuration variants

The following controller configuration variants can be selected: “Room temperature controller”, “Room temperature controller with floor temperature controller function” or “Floor temperature controller”.

2. Language

The operator can select between the following languages: Czech, Dutch, English, French, German Polish and Russian.

3. Measuring correction

The measured temperature value can, in dependence on the related configuration, be adjusted with regard to each individual sensor within a range from -5K to +5K at 0.1K steps. At the same time, the uncorrected value measured by the related sensor is being indicated on the display (factory setting 0.0).

4. Maximum temperature (setting possible only when using the device as room temperature controller with floor temperature controller function or as floor temperature controller)

The maximum temperature measured by the floor temperature can be defined within a range from 15 to 42°C. Damages to the floor in consequence of excessive temperatures can thus be prevented (factory setting 42°C).

5. Entry of the connected load (entry possible only when using the device as room temperature controller with floor temperature controller function or as floor temperature controller)

In order to allow to compensate the self heating of the HTRRUu, the power consumption of the connected consumer needs to be entered. The power consumed in consequence of the connected heating load is indicated in kW and can be adjusted within a range from 0.1 to 2.3. With intermediate values, the nearest lower value needs to be set. If actuating valves instead of controlling an electric heating system, the low power consumption of these valves can be neglected, so that no changes need to be made (factory setting 0.1).

6. Control methods (available only when using the device as room temperature controller with floor temperature controller function or as floor temperature controller)

PI-PWM method (proportional–integral), recommended for the control of warm-water and floor heating systems.

Two-point method (hysteresis), recommended for the control of electric direct or storage heating systems (factory setting: two-point method).

7. External sensor (connection possible only when using the device as room temperature controller with floor temperature controller function or as floor temperature controller)

The HTRRUu210.021 allows to connect external temperature sensors (NTC) with resistance values of 2, 12, 15 or 33kΩ. The actually used temperature sensor needs to be selected here (factory setting 2kΩ).

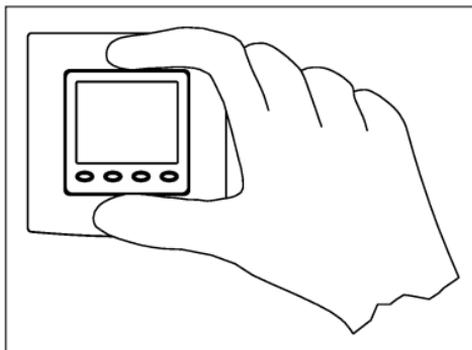
8. Reset function

Actuating this function resets all settings made outside of the experts menu (except for time and date) to the condition as delivered.

7. Mounting / connection

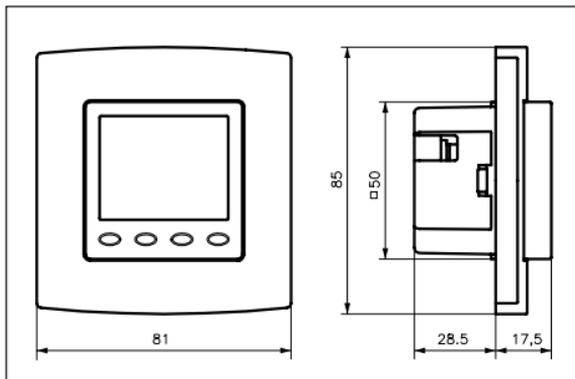
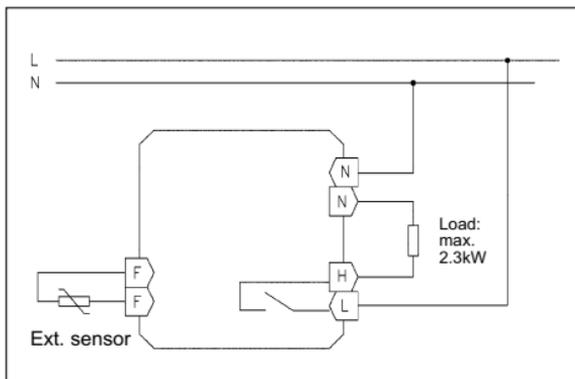
The device equipped with the 50 x 50 mm housing cover can be integrated into almost all currently available flush switch installation frame systems when using DIN 49075 compliant intermediate frames. The device equipped with the 55 x 55 mm housing is, likewise, suited for use with different frame systems. If using multiple frames, the controller needs always to be mounted in the lowest position. The controller is determined for installation in an UP box and may not be exposed to any heat or cold sources. The controller must not be exposed to direct cold or heat sources. Furthermore, care must be taken to ensure that the device is not exposed to the influence of foreign heat or cold sources that warm or cool the device at its back (through air flows in cavity walls or the temperatures radiated by ascending pipelines, f. ex.). The controller should be mounted on the wallpaper / the wall covering.

Caution: Prior to performing any installation works, always make sure to disconnect the mains voltage at all poles! The electrical connection is



to be realised as shown in the connection diagram in section 8 herein. The plug-type terminals can comfortably be pre-wired for this purpose and connected to the controller while installing it into the under plaster box. The opening of the device is realised as described in the drawing below by holding the housing cover at the top and bottom and pulling it open. After first start-up, the experts menu items 6.2, "Language" and 6.1, "Selection of controller configuration variants", are being called up all automatically. The device will only be operable after having made correct entries.

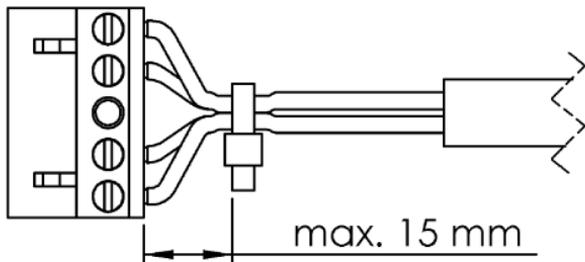
8. Wiring diagram and dimensioned drawing



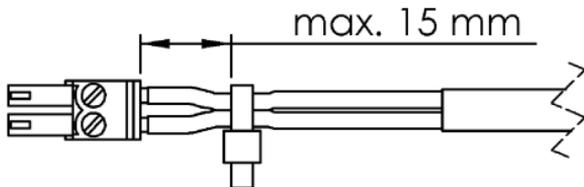
Important Notice!

The single wires of both the power supply cable and the sensor line need to be protected against shifting by securing them with one cable tie each as shown here below. In so doing, care is to be taken to ensure that the distance between cable tie and power supply- or sensor line terminal respectively, is always kept as short as possible (max. 15 mm).

Power supply terminal



max. 15 mm



max. 15 mm

Sensor line terminal

9. Technical data

Operating voltage:	230V~, 50Hz
Sensor:	NTC – internal; NTC – externally connectable type
Switching contact:	relay (make contact)
Switching capacity:	10(2)A / 230V~
Setting range:	5 ... 30°C (control of room temperatures); 10 ... 42°C (control of floor temperature)
Switching difference:	<1K
Temperature decrease:	decrease temperature adjustable as follows: control of room temperatures: 5 ... 29°C control of floor temperatures: 10 ... 41°C (factory setting 17°C)
Display:	graphic display, backlit
Degree of protection:	IP 30
Protection class:	II (after corresponding installation, see drawing on page 37)
Power reserve:	approx. 5 days
Admissible air moisture:	max. 95%, non condensing
Storage temperature:	- 20 ... + 70°C
Ambient temperature:	0 ... 35°C
Housing colour:	pure white, pearly white or white similar to RAL 9016 (traffic white)
Housing material:	made of PC, PMMA or ABS
Installation / mounting:	in an UP box; suited for integration into all currently available flush mounted switch frame installation systems

10. Accessories

HF-8/4-K2 – External floor temperature sensor, incl. 4 m long cable

HF-8/6-K2 – External floor temperature sensor, incl. 6 m long cable

THF – Sleeve to ensure the sensor is protected when installing it into the floor screed

11. 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 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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Note on Disposal!

Do not dispose of the unit
with general household waste
The device must be taken to a
local waste disposal.

