

Data Sheet

Subject to technical alteration
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Application

Modern design, flush mounting fan coil room thermostat. Used for individual control of temperature in commercial, industrial and residential buildings. It is tailored for two-pipe and four-pipe fan coil units with two-wire electric valves. The device combines a modern design with a 2,5" LCD and a touch-sensitive surface, 3 time program options each with 4 time periods options.

Security Advice – Caution



The installation and assembly of electrical equipment should only be performed by authorized personnel.

The product should only be used for the intended application. Unauthorised modifications are prohibited! The product must not be used in relation with any equipment that in case of a failure may threaten, directly or indirectly, human health or life or result in danger to human beings, animals or assets. Ensure all power is disconnected before installing. Do not connect to live/operating equipment.



CAUTION! Risk of electric shock due to live components within the enclosure, especially devices with mains voltage supply (usually between 90..265 V).

Please comply with

- Local laws, health & safety regulations, technical standards and regulations
- Condition of the device at the time of installation, to ensure safe installation
- This data sheet and installation manual

Notes on Disposal



As a component of a large-scale fixed installation, Thermokon products are intended to be used permanently as part of a building or a structure at a pre-defined and dedicated location, hence the Waste Electrical and Electronic Act (WEEE) is not applicable. However, most of the products may contain valuable materials that should be recycled and not disposed of as domestic waste. Please note the relevant regulations for local disposal.

Remarks to Room Sensors

Location and Accuracy of Room Sensors

The room sensor should be mounted in a suitable location for measuring accurate room temperature. The accuracy of the temperature measurement also depends directly on the temperature dynamics of the wall. It is important, that the back plate is completely flush to the wall so that the circulation of air occurs through the vents in the cover. Otherwise, deviations in temperature measurement will occur due to uncontrolled air circulation. Also the temperature sensor should not be covered by furniture or similar devices. Mounting next to doors (due to draught) or windows (due to colder outside wall) should be avoided.

The temperature dynamics of the wall will influence the temperature measurement. Various wall types (brick, concrete, dividing and hollow brickwork) all have different behaviours with regards to thermal variations.

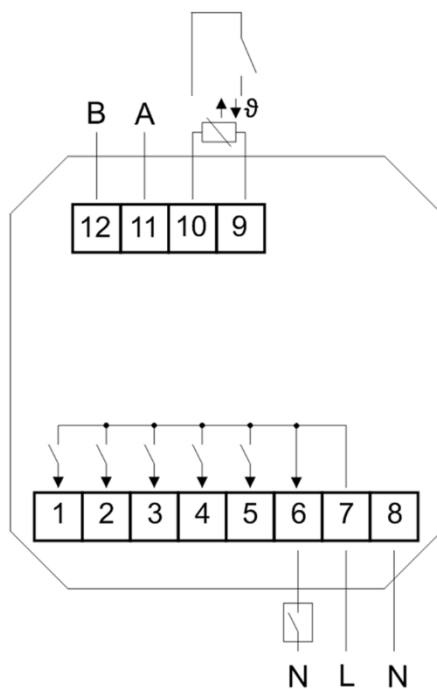
Surface and Flush Mounting

The temperature dynamics of the wall influence the measurement result of the sensor. Various wall types (brick, concrete, dividing and hollow brickwork) have different behaviours with regard to thermal variations. A solid concrete wall responds to thermal fluctuations within a room in a much slower way than a light-weight structure wall. Room temperature sensors installed in flush boxes have a longer response time to thermal variations. In extreme cases they detect the radiant heat of the wall even if the air temperature in the room is lower for example. The quicker the dynamics of the wall (temperature acceptance of the wall) or the longer the selected inquiry interval of the temperature sensor is the smaller the deviations limited in time are.

Technical Data

Measuring values	temperature
Network technology	RS485 Modbus, baud rate 9.600, 19.200, 38.400 or 57.600, parity none (2 stopbits), even or odd (1 stopbit)
Output switch contact	5x normally open contacts (2x heating/cooling, 3x fan speed) 240 V load max. 3 A
Power supply	85..260 V ~
Power consumption	max. 2 VA (260 V ~)
Measuring range temp.	0..+50 °C
Accuracy temperature	±1 K (typ. at 21 °C)
Inputs	input for NTC 10 K or floating contact input for change-over (230 V ~)
Control function	setpoint adjustment +0..+50 °C
Display	LCD 2,5", 240x160 px, blue backlighting
Functions	integrated 2-point-/ 3-point-controllers
Enclosure	PC, scratch-resistant acrylic glass
Protection	IP30 according to EN 60529
Connection electrical	terminal block max. 1,5 mm ² terminal block max. 1.0 mm ²
Ambient condition	0..+50 °C, max. 95% rH non-condensing
Weight	195 g
Mounting	flush mounted with standard EU box (Ø=55 mm)

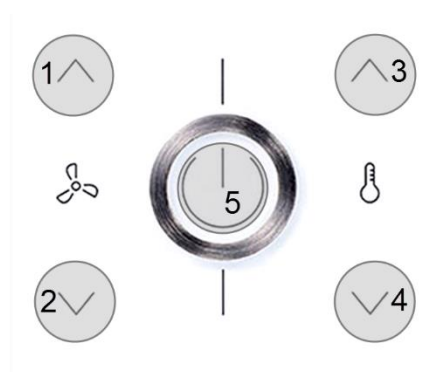
Connection plan



1	Fan Speed 3	7	L
2	Fan Speed 2	8	N
3	Fan Speed 1	9	input 1/universal/floating
4	Cooling	10	
5	Heating	11	Modbus A
6	230 V digital input (Change-Over)	12	Modbus B

Function Description

Buttons



With the power-button (5), the device can be turned on and off.

Buttons on the touch-surface, fan speed and setpoint adjustment.

The Fan speed can be set by the Buttons UP (1) and DOWN (2), set point by (3) and (4). 10 seconds without any interaction, the display returns back to main screen.

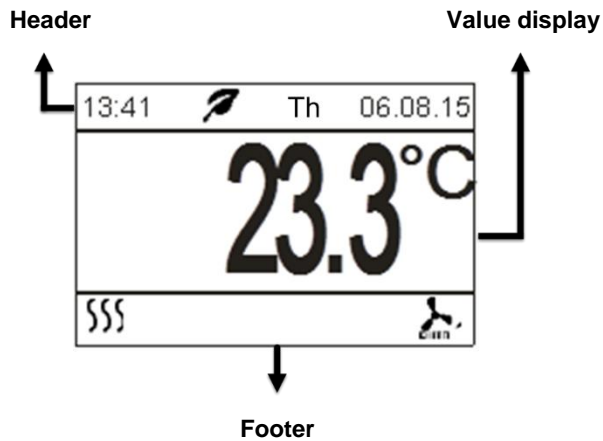
While pressing of these buttons, the white LED of the Power-button (5) lights up for visual feedback.

Controller


For cooling and heating mode the room thermostat has an integrated 2 point-/3 point controller. In Automatic mode the Fan speed is overridden by the main controller.


Main screen/ Value display

The Display shows the measured value of the internal sensor. The value of an external sensor will be shown if connected and configured accordingly. The room thermostat controls in this case according to the external sensor.



Header











Current date and time will be displayed in the header. If enabled, ECO-mode status is indicated via symbol .

An attention symbol  can be displayed in the header. This symbol has a higher priority than the ECO-mode symbol and is prefixed instead of this.

Footer

Depending upon the heating or cooling mode, occupancy or window contact status, the corresponding symbols will be shown in the footer. The symbol "active timechannel" will be shown only if active.

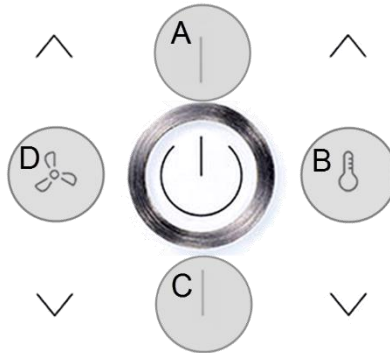
Symbols

Occupancy	 
Window contact/dew point	 
Heating/Cooling	 
Fan Speed	 
Active timechannel	 

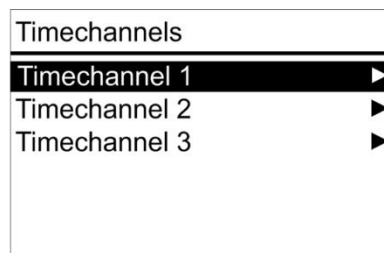
Configuration

The setpoint of the Modbus version can be adjusted to any particular requirements or overwritten by a higher-level control.

Buttons



The configuration menu is activated by simultaneously pressing the buttons “up” (A), “left” (D) and “right” (B) for at least 3 seconds.



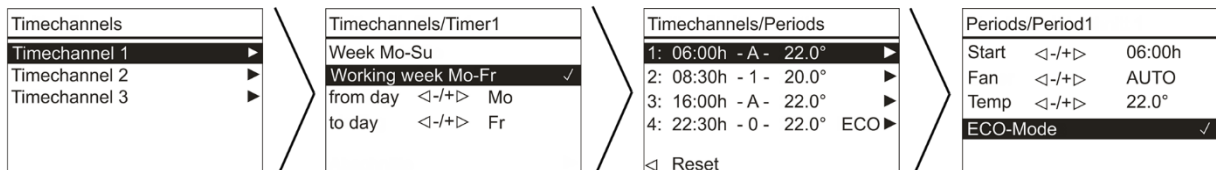
Menu navigation through the menu is performed by pressing the buttons on the touch-surface “up” (A), “down” (C), “left” (D), “right” (B) the power button. The menu will default after 30 seconds if no button is pressed. To exit the menu select the header line and press “left” (D)

Change in value

<-/+> With the Buttons “left”(D)/“right“(B) value can be set.

Time channels

Set point and timer can be set in this menu. Three different time channels with four periods of time are available. The Time channels are prioritised. Channel 3 has the highest priority.



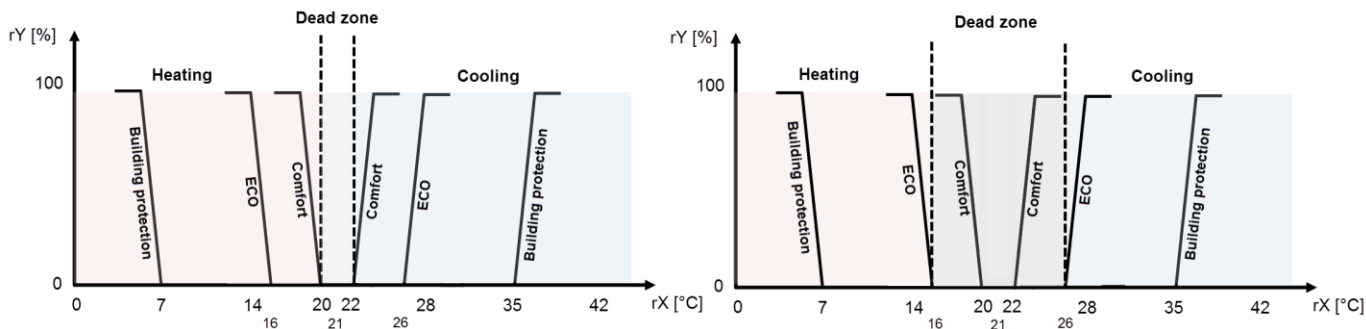
Choose the time channel and press “right” to enter the submenu. It is possible to select the total week as well as individual days

The selected parameter will be marked with the symbol ✓

To edit the parameter of the selected timer, choose “section” and press “right”.

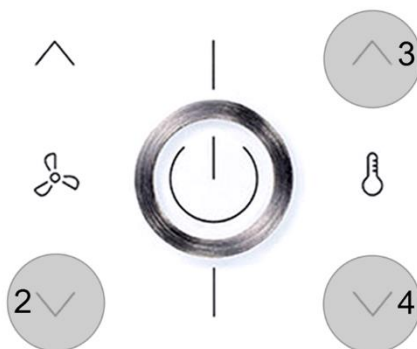
ECO-mode is also available in the menu “section”, when selecting the dead zone increase from 2 °C to 10 °C. The adjustable dead zone between the activation of heating or cooling modes enables an optimisation between comfort and energy saving.

The dead zone between heating and cooling in the ECO-mode will be set to the configured deadband range (see common settings). (default 10.0 K)



Modbus parameter menu

The configuration menu is activated by simultaneously pressing the buttons “right up” (3), “right down” (4) and “left down” (2) for at least 5 seconds, while the header line of the “time channels menu” is selected.



Modbus settings		
Address	◀-/▶	32
Baudrate	◀-/▶	38400
Parity	◀-/▶	None

Address

Adjustable address (1-247)

Baud rate

9600Bd | 19200Bd | 38400Bd | 57600Bd

Parity

Non | odd | even

Inputs

Sensor

The value of an external sensor will be shown if connected and configured accordingly. The room thermostat controls in this case according to the external sensor.

Change-Over DI

Which controller is active depends on the state of the Change-Over contact. (Factory default: contact open heating controller active, contact closed cooling controller active)

Change-over sensor

If a change-over input is configured, the heater relay output (clamp 5) is used for heating and cooling (2-wire mode: 19 °C cooling controller active, 30 °C heating controller active)

Windows contact/ Energy shut off

When window contact is enabled via the digital input, the reference will switch to a setback set point (Heat SP/Cool SP).

Dew point

An active dew point contact locks the cooling controller.

Occupancy

If occupancy-function is active, the symbol will be displayed automatically. In state of "unoccupied" the heating set point is reduced by 2K or the cooling set point raised by 2K.

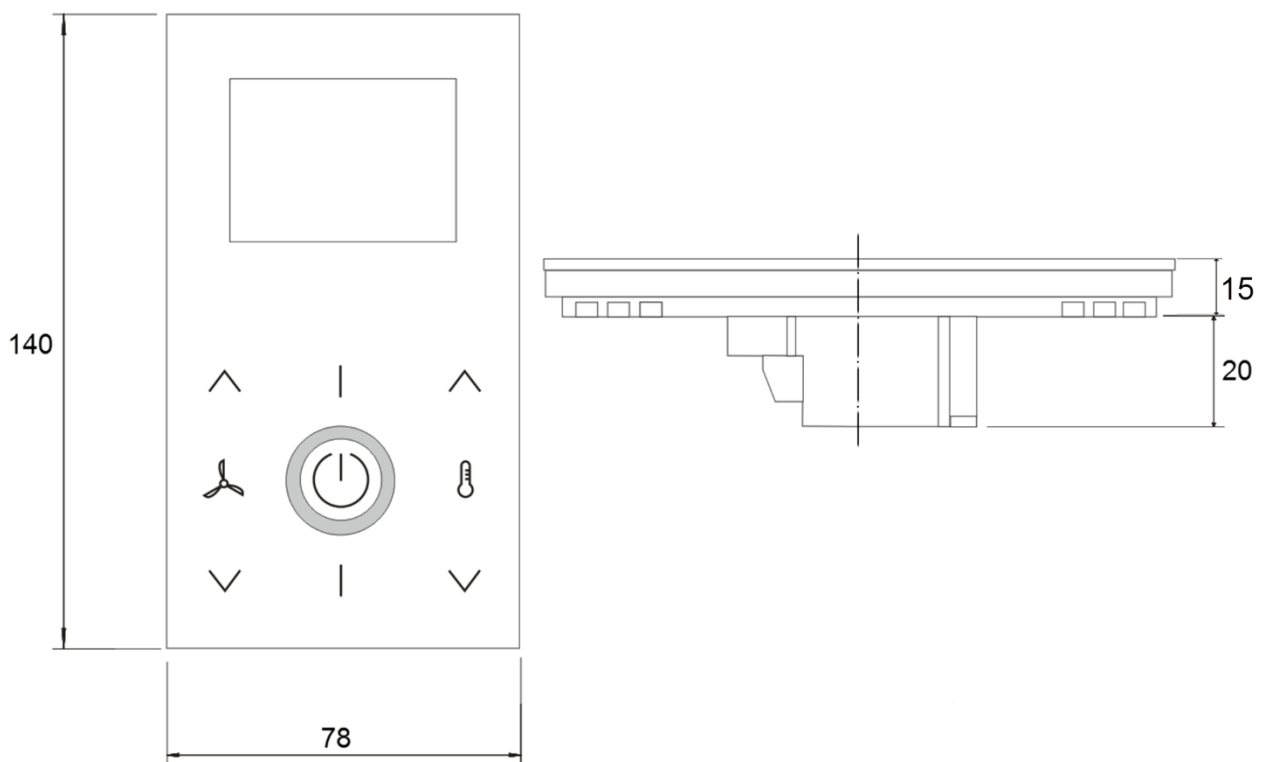
Modbus Register

A detailed description of the parameter and the configuration software can be found using the following link:

http://www.thermokon.de/download-archive/Raumbedienger%C3%A4te/Thermostate/JOY/Software/JOY_RS485_Modbus_de_en.zip



Dimensions (mm)



Accessories

IR remote control JOY

Item No. 613798