

Temperature controller fan coil, 2-pipe

Art. no.: TRDA523028..

Temperature controller fan coil, 2-pipe

Art. no.: TRDLS923028..

Temperature controller fan coil, 4-pipe

Art. no.: TRDA523048..

Temperature controller fan coil, 4-pipe

Art. no.: TRDLS923048..

Operating instructions**1 Safety instructions**

Electrical devices may only be mounted and connected by electrically skilled persons.

Serious injuries, fire or property damage possible. Please read and follow manual fully.

These instructions are an integral part of the product, and must remain with the end customer.

2 Intended use

- Switching and operating electrical fan coil units with electrothermically actuated heating/cooling valves
- Measurement and feedback control of the room temperature
- Mounting in appliance box according to DIN 49073

These instructions contain information on the mounting, installation and the commissioning of the product. The detailed instructions on our website contain information on the function of the device and the setting of setpoints.

Product characteristics

- Connection of one fan coil unit with up to 3 fan stages
- Operating modes for heating, cooling or combined heating/cooling operation
- Variants for 2-pipe or 4-pipe operation
- 8 capacitive sensor buttons
- Internal temperature sensor
- Room temperature controller function
- Preselection of the current energy level through the option of 5 temperature profiles for use in hotels or similar sites
- Display for indication of temperature (°C or °F), fan level, operating mode/profile
- Menu levels blockable
- 1 status LED (red/green/blue)
- Brightness and contrast adjustable
- Switch-off time of the display illumination up to 120 seconds
- Extension input to the connection of, e.g. hotel card switch (see accessories)

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4 Operation

Operating elements

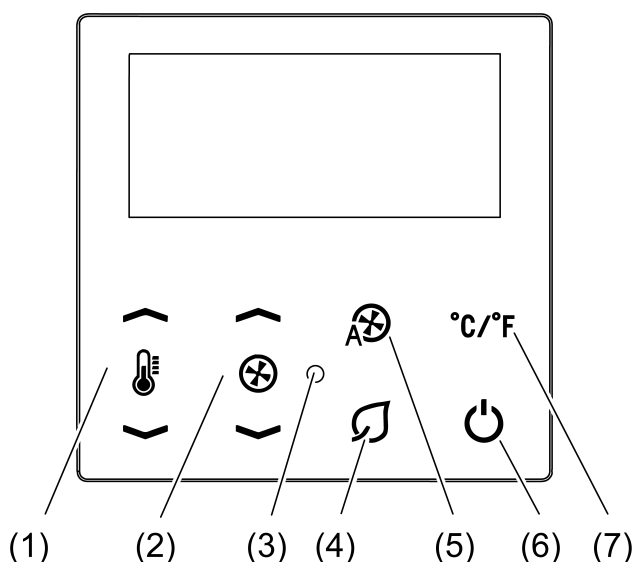


Figure 1: View

- (1) Temperature setpoint adjustment 🌡️ ⬆️ / ⬆️
- (2) Manual setting of the fan stage 🌀 ⬆️ / 🌀 ⬆️
- (3) Status LED
- (4) Switchover to the **Eco** 🍃 profile
- (5) Fan stage automatic mode 🌀 A
- (6) Switchover to the **Standby** ⏻ profile
- (7) Switchover of the temperature display Celsius/Fahrenheit °C/°F

Status LED

The status LED shows the current operating mode of the controller or the actuation of the sensor buttons or both.

LED colour	Profile
Green or off	Comfort, comfort-, eco

LED colour	Profile
Red or off	Standby, building protection

Green flashing signals actuation of the sensor buttons.

Open menu level 1

Only for heating and cooling mode with manual switchover. In systems that are intended solely for heating or cooling menu level 1 is not available.

- Press the sensor buttons and between 2 and 4 seconds.

Open menu level 2

- Press the sensor buttons and longer than 5 seconds.

Operating in the menu

- Increase value: press sensor button .
- Reduce value: press sensor button .
- Select previous menu item: press sensor button.
- Select next menu item: press sensor button.
- Exit menu without saving: press sensor button () ()
- Save settings and exit menu: Press the $^{\circ}\text{C}/^{\circ}\text{F}$ sensor button. ()

5 Operation

Setpoints for room temperature and fan stage – Profiles

The selection of the current setpoints for room temperature and fan stage is based on so-called profiles that are specified by the user on site. The following situations are covered, e.g.:

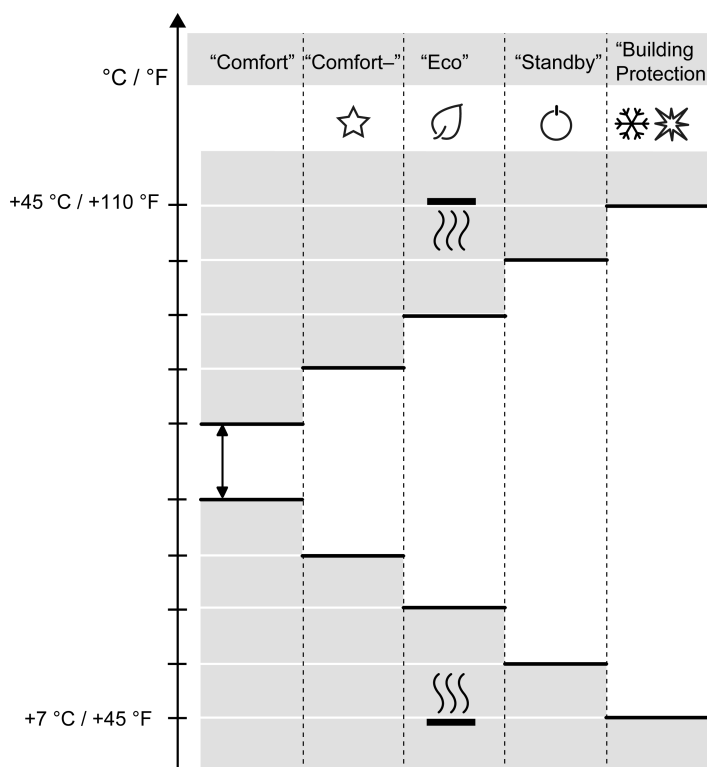


Figure 2: Temperature setpoints for heating and cooling for the individual profiles

- "Comfort" profile:
The hotel room is occupied, the hotel guest is present. The room temperature is set to a comfortable value.

- "Comfort-" profile ☆ (if a hotel card switch is installed):
The hotel guest is not present. The setpoints are set to an energy saving level; the values of the "Comfort" profile can be reached quickly.
As soon as a hotel guest inserts the hotel card into the available hotel card switch, the controller switches to the "Comfort" profile.
- "Eco" profile ∩:
It is night, the controller controls the connected fan coil units and puts them into an energy-saving and silent operation.
- "Standby" profile ○:
Currently the room is not in use. The energy level is set such that only minimum heating/air conditioning costs are incurred by the owner.
- "Building Protection" profile ❄❄:
When the environment raises or lowers the room temperature to a level that could damage the building, the controller automatically activates the building protection operation. The setpoint temperatures are permanently set (heating: + 7 °C; cooling: +45 °C).

Operating elements

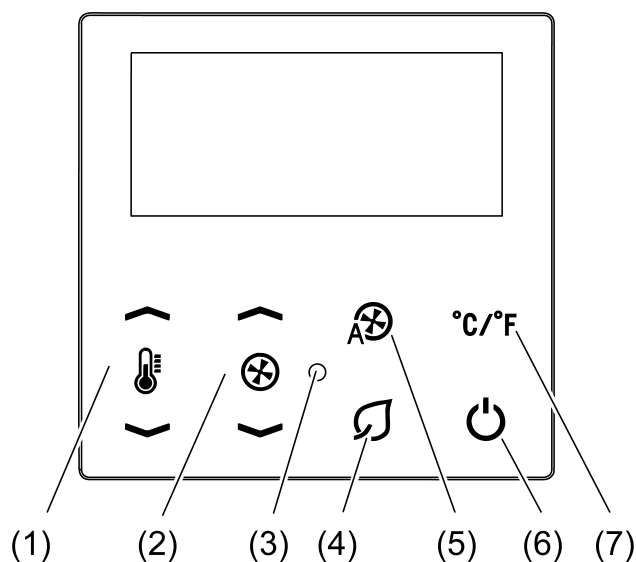









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- (2) Manual setting of the fan stage 🌀 ⬆️ / 🌀 ⬆️
- (3) Status LED
- (4) Switchover to the **Eco** ∩ profile
- (5) Fan stage automatic mode 🌀⚡
- (6) Switchover to the **Standby** ○ profile
- (7) Switchover of the temperature display Celsius/Fahrenheit °C/°F

Operating modes and display icons

The device compares the current room temperature with the setpoint temperature and controls heating or cooling devices according to the current demand. The setpoint temperature depends on the currently set profile and can be changed by the user, depending on the setting. The current operating state is displayed.

Icon	Meaning
No icon	Comfort profile
☆	Comfort- profile
∩	Eco profile

Icon	Meaning
	Standby profile
	Building Protection profile
	Heating
	Cooling
	Setpoint temperature
	Manual fan level
	Automatic fan level

Status LED

The status LED shows the current operating mode of the controller or the actuation of the sensor buttons or both.

LED colour	Profile
Green or off	Comfort, comfort-, eco
Red or off	Standby, building protection








Green flashing signals actuation of the sensor buttons.



Operating level and menu levels

The current profile with setpoints for room temperature and fan stage is preselected on the operating level. In addition, for the "Comfort" profile the setpoints can be manually corrected temporarily.






The menu levels define the setpoints for the individual profiles and further settings for operation.

Operating level

- Increase setpoint temperature: press sensor button .
- Reduce setpoint temperature: press sensor button .
- Increase fan stage: press sensor button .
- Reduce fan stage: press sensor button .
- Set automatic fan stage: press sensor button .
- Switchover to Eco profile: press sensor button .
- Switchover to Standby profile: press sensor button .

i The profiles Eco and Standby are exited by pressing again the sensor buttons  or . The follow-on condition depends on whether or not the presence of persons was reported to the controller.

Operating in the menu

- Increase value: press sensor button .
- Reduce value: press sensor button .
- Select previous menu item: press  sensor button.
- Select next menu item: press .
- Exit menu without saving: press sensor button  ().
- Save settings and exit menu: Press the  sensor button. ()

Open menu level 1

Only for heating and cooling mode with manual switchover. In systems that are intended solely for heating or cooling menu level 1 is not available.

- Press the sensor buttons  and  between 2 and 4 seconds.

Menu level 1:

- Switchover heating mode/cooling mode

Open menu level 2

- Press the sensor buttons and longer than 5 seconds.

Menu level 2:

- Setpoint temperature Comfort heating
- Setpoint temperature Comfort cooling
- Lowering the setpoint temperature Comfort- heating
- Raising the setpoint temperature Comfort- cooling
- Setting fan stage Comfort-
- Lowering the setpoint temperature Eco heating
- Raising the setpoint temperature Eco cooling
- Setting fan stage Eco
- Lowering the setpoint temperature Standby heating
- Raising the setpoint temperature Standby cooling
- Setting fan stage Standby
- Set offset for temperature measurement
- Set display brightness
- Set display contrast
- Set display illumination duration
- Status LED: button-press indicator
- Status LED: operation indicator
- PWM cycle time
- Disable controller
- Resetting to factory setting

Setting	Display	Range [step width]
Setpoint temperature Comfort heating	COMFORT HEATING	+7 ... +45 °C [0.5 K] +45 ... +110 °F [1 °F]
Setpoint temperature Comfort cooling	COMFORT COOLING	+7 ... +45 °C [0.5 K] +45 ... +110 °F [1 °F]
Comfort fan stage	-	Is permanently set to Auto
Lowering the setpoint temperature Comfort- heating	COMFORT- HEATING	Lowering by 0 ... 10 K [0.5 K] 0 ... 18 °F [1 °F]
Raising the setpoint temperature Comfort- cooling	COMFORT- COOLING	Raising by 0 ... 10 K [0.5 K] 0 ... 18 °F [1 °F]
Setting fan stage Comfort-	COMFORT 	AUTO AUTO-1 AUTO-1 -2 0 1 2 3
Lowering the setpoint temperature Eco heating	ECO HEATING	Lowering by 0 ... 10 K [0.5 K] 0 ... 18 °F [1 °F]

Raising the setpoint temperature Eco cooling	ECO COOLING	Raising by 0 ... 10 K [0.5 K] 0 ... 18 °F [1 °F]
Setting fan stage Eco	ECO 	AUTO AUTO-1 AUTO-1 -2 0 1 2 3
Lowering the setpoint temperature Standby heating	STANDBY HEATING	Lowering by 0 ... 10 K [0.5 K] 0 ... 18 °F [1 °F]
Raising the setpoint temperature Standby cooling	STANDBY COOLING	Raising by 0 ... 10 K [0.5 K] 0 ... 18 °F [1 °F]
Setting fan stage Standby	STANDBY 	AUTO AUTO-1 AUTO-1 -2 0 1 2 3
Set offset for temperature measurement	TEMPERATURE OFFSET	-12.8 ... +12.7 K [0.1 K] -23.0 ... +22.8 °F [0.2 °F]
Set display brightness	DISPLAY BRIGHTNESS	1 – 2 – 3
Set display contrast	DISPLAY CONTRAST	1 – 2 – 3
Set display illumination duration	DISPLAY TIMEOUT	15 ... 120 s [1 s]
Status LED: button-press indicator	STATUS LED	Activate the function: ON Deactivate the function: OFF
Status LED: operation indicator	OPERATION LED	Activate the function: ON Deactivate the function: OFF
PWM cycle time	CYCLE TIME INTERVAL	5 ... 255 min [5 min]
Disable controller	ACTUATOR	Disable: UNLOCK Enable: LOCK
Resetting to factory setting	FACTORY RESET CONFIRM	Cancel: <input type="checkbox"/> Confirm: <input checked="" type="checkbox"/>

6 Information for electrically skilled persons



DANGER!

Mortal danger of electric shock.

Disconnect the device. Cover up live parts.

6.1 Fitting and electrical connection

Mounting and connecting the device

Recommended installation height: 1.50 m.

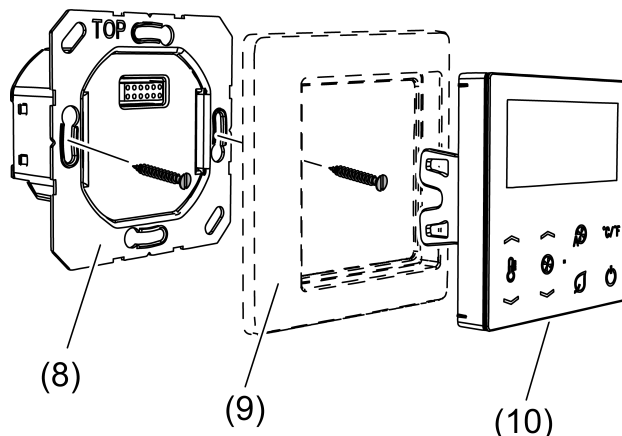


Figure 4: Fitting the device

- (8) Power supply unit
- (9) Frame
- (10) Cover



If the motor of the fan coil unit requires a defined switchover interval between the fan levels, connect a suitable delay module.

- Connect the fan coil unit for 2-pipe operation to a 2-pipe (Figure 5) or 4-pipe (Figure 6) power supply unit variant.
- Connect the fan coil unit for 4-pipe operation to a 4-pipe (Figure 7) power supply unit variant.
- Install the power supply unit (8) in the right orientation in an appliance box. Note marking **TOP**.
- Fit the frame (9) onto the insert.
- Fit the cover (10) onto the insert

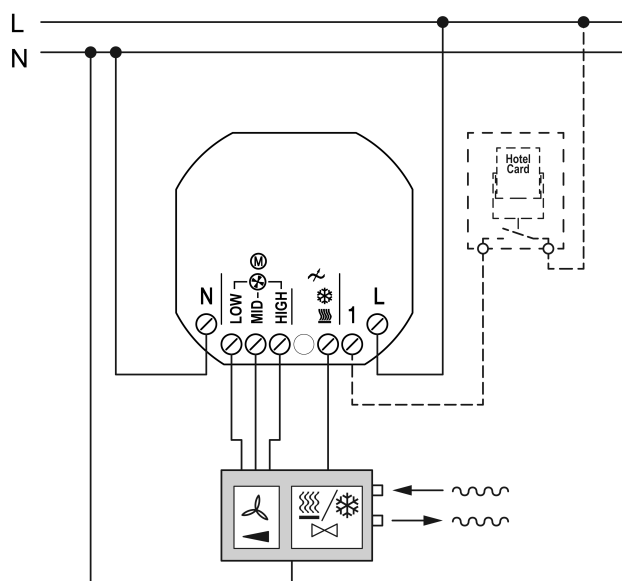


Figure 5: Connection of a 2-pipe fan coil unit with hotel card switch

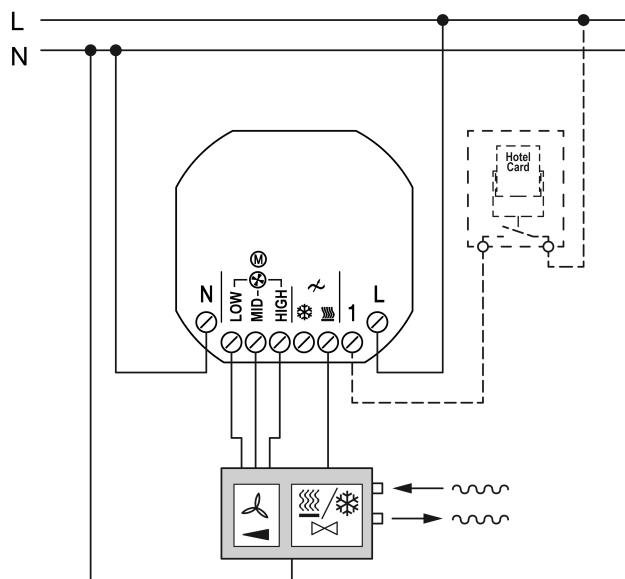


Figure 6: Connection of a 2-pipe fan coil unit to a 4-pipe fan coil controller

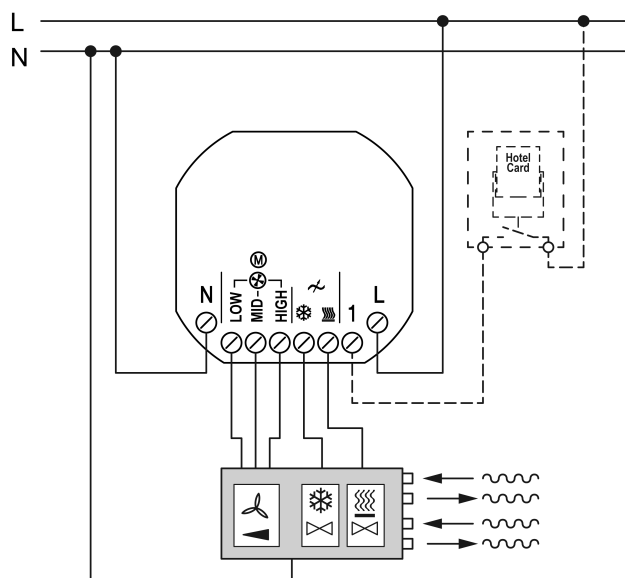


Figure 7: Connection of a 4-pipe fan coil unit with hotel card switch






6.2 Commissioning

First steps – Configuration menu

After mounting the device has to be adapted to the system.

The configuration menu is only available on first commissioning and after resetting to factory settings.

- i** Exception: Project-specific devices are preconfigured in the factory. The settings of the configuration menu are not available for this devices.
- Switch on voltage.
The device displays the software version for 5 seconds. The device subsequently changes into the configuration menu.
- Set the properties of input 1 for the hotel card switch:
OFF not connected
OPEN for NO contact
CLOSE for NC contact

- Set the fan coil unit type:
2 Pipes for 2-pipe system
4 Pipes for 4-pipe system
- ❗ The variants TRD..23028.. are permanently set to **2 Pipes**.
- Set the function:
MODE  **HEATING**: The device only actuates heating units.
MODE  **COOLING**: The device only actuates climate control units.
MODE  **MANUAL**: The device actuates heating and climate control units. The switchover between heating and cooling mode is carried out manually on the device.
MODE  **AUTO**: The device actuates heating and climate control units and automatically switches between heating and cooling mode.
- ❗ The **Mode**  **AUTO** setting is only available for the TRD..23048.. variants.
- Set the properties of the actuators to be controlled:
VALVE OPEN for de-energised open actuators
VALVE CLOSE for de-energised closed actuators
- Setting the switchover delay between fan levels:
CHANGE-OVER-TIME 0 s ... 10 s for adapting the switchover delay to the fan coil unit

When the settings are saved, the device exits the configuration menu. The system parameters set there can only be changed after resetting to factory settings.

- ❗ Following the first steps it is convenient to compare the temperature measurement and to set the cycle time if necessary. Both settings can be found on the second menu level.

Set offset for temperature measurement

By setting this parameter differences between the measured temperature value at the installation location and the actual room temperature are offset.

- Measure the temperature in the room and note down as value **T1** .
- Read the temperature measured by the device and note down as value **T2** .
- Calculate the difference between both values $\Delta T = T1 - T2$ and note it down.
- Open menu level 2.
- Open the menu page **TEMPERATURE OFFSET**.
- Set the difference value on the device.

7 Information for electrically skilled persons



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Disconnect the device. Cover up live parts.

Mounting and connecting the device

Recommended installation height: 1.50 m.

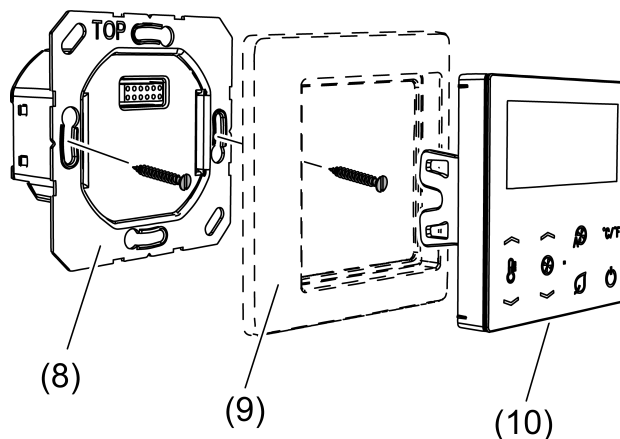


Figure 4: Fitting the device

- (8) Power supply unit
- (9) Frame
- (10) Cover

- i** If the motor of the fan coil unit requires a defined switchover interval between the fan levels, connect a suitable delay module.
- Connect the fan coil unit for 2-pipe operation to a 2-pipe (Figure 5) or 4-pipe (Figure 6) power supply unit variant.
- Connect the fan coil unit for 4-pipe operation to a 4-pipe (Figure 7) power supply unit variant.
- Install the power supply unit (8) in the right orientation in an appliance box. Note marking **TOP**.
- Fit the frame (9) onto the insert.
- Fit the cover (10) onto the insert

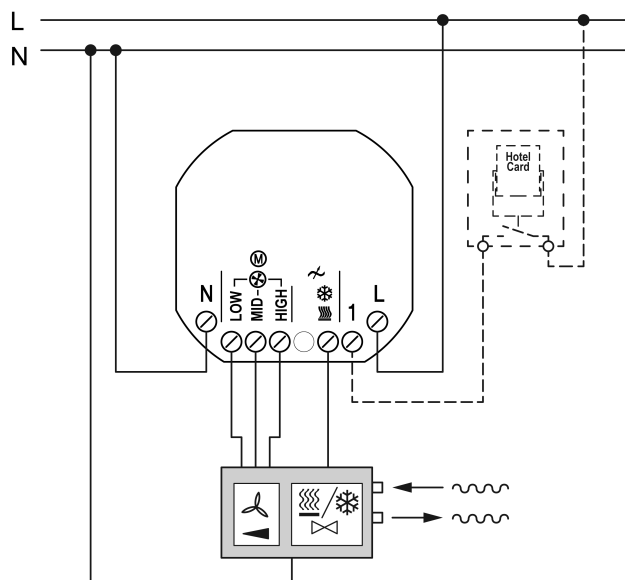


Figure 5: Connection of a 2-pipe fan coil unit with hotel card switch

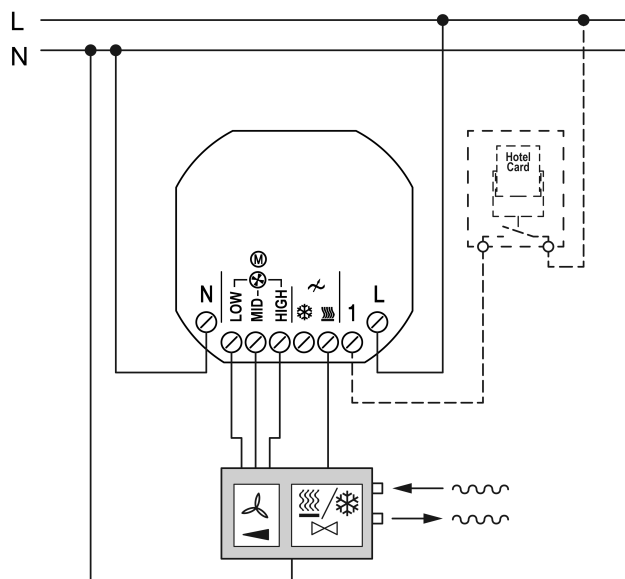


Figure 6: Connection of a 2-pipe fan coil unit to a 4-pipe fan coil controller

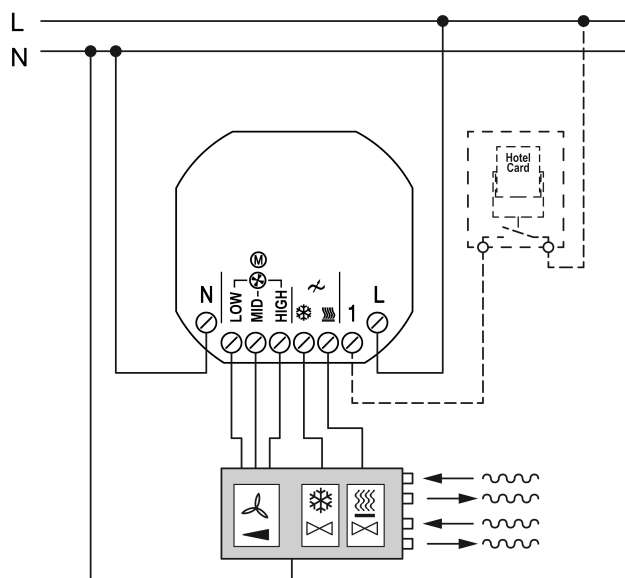






Figure 7: Connection of a 4-pipe fan coil unit with hotel card switch

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- Switch on voltage.
The device displays the software version for 5 seconds. The device subsequently changes into the configuration menu.
- Set the properties of input **1** for the hotel card switch:
OFF not connected
OPEN for NO contact
CLOSE for NC contact
- Set the fan coil unit type:
2 Pipes for 2-pipe system
4 Pipes for 4-pipe system

- i** The variants TRD..23028.. are permanently set to **2 Pipes**.
 - Set the function:
 - MODE**  **HEATING**: The device only actuates heating units.
 - MODE**  **COOLING**: The device only actuates climate control units.
 - MODE**  **MANUAL**: The device actuates heating and climate control units. The switchover between heating and cooling mode is carried out manually on the device.
 - MODE**  **AUTO**: The device actuates heating and climate control units and automatically switches between heating and cooling mode.

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- Set the properties of the actuators to be controlled:
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- Setting the switchover delay between fan levels:
 - CHANGE-OVER-TIME 0 s ... 10 s** for adapting the switchover delay to the fan coil unit

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- Set the difference value on the device.

8 Appendix

8.1 Technical data

Rated voltage	AC 110 ... 230 V ~
Mains frequency	50 / 60 Hz
Total power loss	0.18 ... 0.52 W
Fan output 	
Output current	max. 3 A
Motors 230 V	690 VA
Motors 110 V	300 VA
Switchover delay	0 ... 10 s
Valve outputs 	
Switching current	max. 250 mA
Storage temperature	-5 ... +45 °C
Transport temperature	-25 ... +70 °C
Ambient temperature	-5 ... +45 °C
Relative humidity	5 ... 95 % (no moisture condensation)
Connection	
single stranded	1.5 mm ²

Finely stranded with conductor sleeve	1.5 mm ²
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8.2 Accessories

Key card holder RFID	..CARDRFID..
Energy saving unit	ESU230-2

8.3 Warranty

The warranty is provided in accordance with statutory requirements via the specialist trade.

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