

Installation and operating instructions



This product is made for switching destratification fans according to the CE norms:

- EN 61000-6-2:2005
- EN 61000-6-3:2007+A1:2011+AC:2012
- EN 60730-1:2011
- EN 60730-2-9:2010
- 2014/30/EU
- 2014/35/EU
- 2014/65/EU



Urgent: Do not use this controller for other applications without our agreement.

Read and follow these instructions carefully to prevent personal injury and property damage. Keep always this instruction booklet.



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1. Safety - must be followed

- **URGENT:** Wrong cable connection may damage the controller. There is no liability for losses resulting in wrong cable connection and improper handling.
- Before installation and repairs, make sure **power is off at the main service panel**. Tag it to prevent unexpected power on.
- Verify that power supply is compatible with rating label markings.
- The electric installation and the repairs must be done by a professional expert in accordance with VDE 0100, EN 60730 part 1 and all applicable codes and standards.
- The controller must be protected by a certificated switch, with double terminal and contact opening not lower than 3 mm.

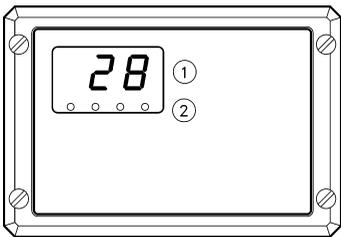
2. Short description

The controller checks with two sensors the temperature at the floor and at the ceiling of the hall.

If the temperature difference is higher than the adjusted power-on-difference, the relay will start the fans. If the temperature difference is lower than the adjusted power-off-difference, the relay will stop the fans.

With one or more additional speed regulators (installed between temperature balance controller and fans) you can adjust the speed of the fans to the hall height and to the special areas of the hall.

3. Front view



3.1. Display

You see at the LED display ①

- Alternating the temperature of the floor sensor and the ceiling sensor.
- In case of any sensor error: Err or HI.

3.2. LED 1 till 4 ②

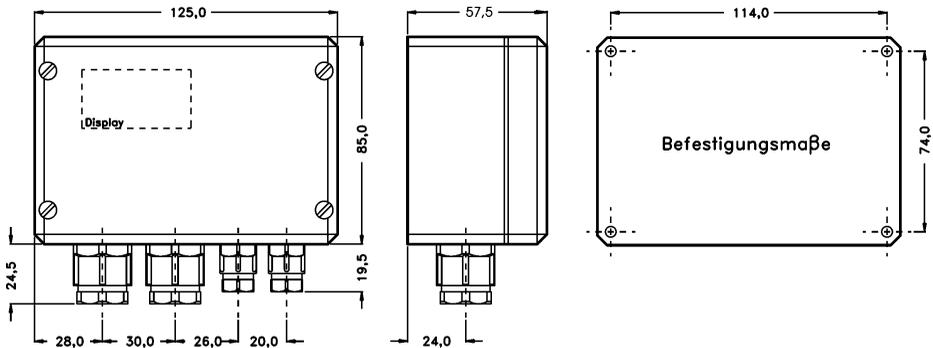
1. LED on - floor temperature on display
2. LED on - ceiling temperature on display
3. LED on - the fans are switched on
4. LED - without function

4. Installation

4.1. Mount the box to the wall

Choose a place for the controller with maximum ambient temperature 45°C, no flammable or explosive substances.

You can use the installation dimensions for help.



4.2. Cabling



4.3. Installation and connection of the sensors

Place one sensor around 50cm from the ceiling and one sensor around 100cm from the floor. The sensors must not be near air flows, doors, windows, water pipes and other wrong temperatures.

Wires to the sensors must not lay together with other power cables. If there is a higher risk of electromagnetic disturbance, use shielded cable, earthed at the controller side. Wires must be minimum 0,5mm² till 30m or 0,75mm² till 45m.

Connect the sensor wires to the corresponding clamps 6 till 9. The polarity is arbitrary.

But definitely observe that the sensor for the ceiling must be connected to the clamps 8 and 9 (sensor 2).

4.4. Connection of the fans

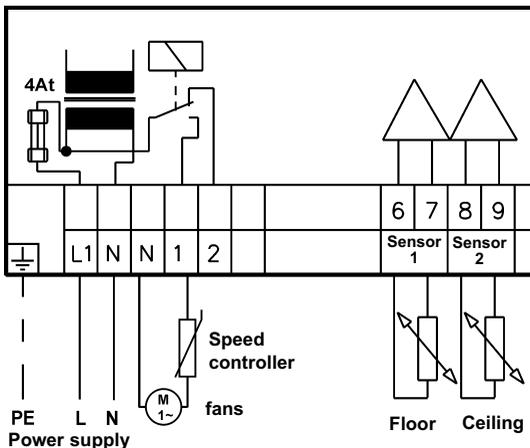
Connect the wires from the fans (and speed regulators) as the drawing to the corresponding clamps:

- „Line“ to the clamp 1
- „Neural“ to the clamp N
- „Ground“ to the grounding symbol (find this clamp lower left in the box)

This clamp is also for the grounding of the power supply

Important: The controller relay is for switching maximum 4A. This means you can directly connect for example 10 of our fans with 75W or 3 of our fans 260W.

You can extend the maximum amperage of 4A by an standard electric contactor.



4.5. Connection of the power supply

Important: Before make sure power is off at the main service panel.

Verify that the power supply is compatible with the rating label markings.

The controller has no power switch and is only approved for connection on permanently installed lines.

Connect the power supply as the drawing:

- Earth (PE) to the clamp earth
- Neutral N to the clamp N
- Line L to the clamp L1

4.6. Setting the switch values

Trimmer ⑤ (Taus):

Adjust here the power-off temperature difference. For example to 2 degrees. A higher value results in shorter running periods of the fans.

Trimmer ④ (t):

Adjust here the distance between power-off and power-on temperature difference. For example to 1 degree.

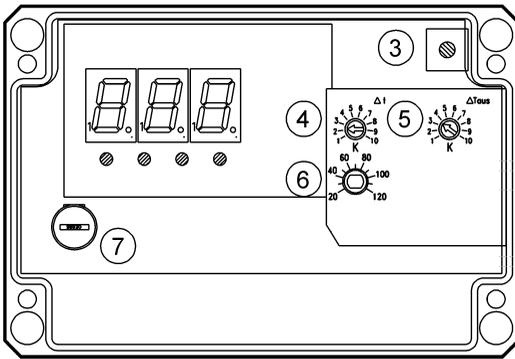
So the complete example is:

trimmer ⑤ 2 degrees (power-off temperature difference)

+ trimmer ④ 1 degree

= power-on temperature difference 3 degree

You should test and adjust the settings in practice to optimize the controller work. Goal is a compromise between perfect temperature equalisation and short running periods of the fans.



- ③ Button for manually mode switch
- ④ t - distance between power-off and power-on temperature difference
- ⑤ Taus - power-off temperature difference
- ⑥ Tsoll - here without function
Must set to 120

4.7. Fuse

The fuse ⑦ protects the relay and the electronic parts.

4.8. Button for manually mode switch

With the button ③ you can switch between three modes by hand.

Push and hold the button, till you see the next mode.

- Push once: The controller is off. Display "OFF"
- Next push: The relay is permanent on. Display "On"
- Next push: End of manually use. Display "End" and the controller goes to automatic mode (the standard mode).

DANGER: After any power failure the controller always starts in automatic mode. If you want to separate the fans from power supply for maintenance or repair, do this not by the mode button. Make sure power is off at the main service panel.

4.9. Summer use of the fans without temperature balance controller

To use the fans during summer for refreshing air movement, you have two ways:

- As written in "4.8. Button for manually mode switch", set the controller to permanent „On“ mode.

Important: After any power failure the controller always starts in automatic mode.

- Install a standard surface-mounting switch besides the controller. Connect the switch to L1 and 1 of the controller. So while the switch is on, the fans running, no matter what the temperature balance controller does.

4.10. Priority switch during heating time

If using air heater for hall heating, maybe it is useful to intermix the new warm air immediately in the hall. For this a professional expert can bridge L1 and 1 of the controller during heating time.

5. Troubleshooting

5.1. The controller shows no function (display is dark):

- Check the fuse inside the controller is OK.
- Check main and branch circuit fuses or circuit breakers are OK.

5.2. Relay does not switch (3. LED remains dark):

- Check the temperature difference in the hall. Is it really bigger than the adjusted power-on-difference (trimmer ④ + trimmer ⑤)?
- Check the temperature sensors are at the right connections (ceiling sensor at 8 and 9)
- Check trimmer ⑥ Tsoll is on 120.

5.3. Relay does not switch off (3. LED on):

- Be sure the relays should be off: Is the temperature difference in the hall really lower than the adjusted power-off-difference (trimmer ⑤)?
- Check the sensors are connected to the right clamps. Sensor 2 (ceiling) to clamp 8 and 9.

5.4. Display error messages:

- LED 1 and display „Err“: short circuit or cable break for sensor 1.
- LED 2 and display „-38“: short circuit for sensor 2
- LED 2 and display „HI“: cable break for sensor 2

5.5. Check the sensors for correct work:

- Disconnect the sensors from the controller. Check the temperature near the sensor with a professional thermometer.
- Check the sensor values using an ohmmeter.

temperature (°C) - sensor (Ohm)

5°	1661	10°	1732	15°	1805	20°	1879
6°	1675	11°	1746	16°	1819	21°	1895
7°	1689	12°	1761	17°	1834	22°	1910
8°	1703	13°	1775	18°	1849	23°	1925
9°	1717	14°	1790	19°	1864	24°	1941

5.6. Sensor temperature deviations / sensor adjust:

- In case of wrong temperatures at the display, maybe the sensor adjust trimmers are not correct set.
- If needed, you can adjust the sensor temperatures as shown by the controller. For example to increase the accuracy.
- For sensor adjust use the two trimmer below the trimmer „Taus“. Perform the adjust during automatic mode (standard mode) of the controller.
- For any change of this sensor adjust trimmer you should use professional thermometers, long time measurements and complete documentation.

6. Technical Data

Permissible ambient temperature	0°C till +45°C
Storage temperature	-30°C till +70°C
Switch off temperature difference	linear 1 K to 10 K
Switching distance	linear 1 K to 10 K
Temperature measurement range	-20°C to +120°C
Operating voltage	230 V / 50 Hz
Contact	1 changer, relay contact, not potential-free
Max. permissible current	4 A motor power, 230 V / 50 Hz
Fuse	4 A slow-acting
Operating life as VDE 0631	min. 2 x 10 ⁵ switching operations
Housing Fastening	Surface mounted
Material	Plastic
IP Protection	IP 54
Protection class	II as VDE 0700 (protective insulation)
Sensor Type	KTY 10-5, semiconductor sensor +- 1°
Design	Plastic housing IP54, without cable
Cable connection	2-conductor cable, 0,5 ² till 30 m; 0,75 ² till 45 m
Weight gross / net	575g / 505g

Subject to alteration



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