

Temperature Difference Control Device Model AGV-2



SCHAKO KG
Steigstraße 25-27
D-78600 Kolbingen
Telephone +49 (0) 74 63 - 980 - 0
Fax +49 (0) 74 63 - 980 - 200
info@schako.de
www.schako.de

Temperature difference control unit AGV-2

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Temperature Difference Control Unit Model AGV-2

Description

Heating and cooling by means of motor-adjustable air diffusers

To create a comfortable room temperature, the supply air temperature must be adjusted according to internal and external loads. In the cooling mode, the air must enter the room without causing draughts. This means that it is directed horizontally beneath the ceiling and then falls evenly into the room.

In contrast, in the heating mode, the heated air must be introduced as close as possible to the floor. From there, the heated air is distributed over the room, thus ensuring even heating. Special air throw characteristics are taken into consideration. This ensures the most energy-efficient method of introducing air into the room.

The temperature difference control unit type AGV-2 is used **for fully automatic control of motor-driven adjustable air diffusers as a function of the difference between supply air and room air temperature.**

The control unit type AGV-2 sets the air throw direction to vertical if the supply air temperature is higher than the room temperature. If the supply air temperature is lower than the room temperature, the air throw direction is set to horizontal.

Functional description

The temperature curve is adjusted at the differential temperature control unit AGV-2 using the controller circuit W_K . Adjustment is carried out at the factory according to individual customer specifications (supply air temperature, room temperature) but can also be readjusted on site.

The measured temperature values for the room air sensor and the supply air sensor are sent to the control unit type AGV-2. Here the temperature values are evaluated. Depending on the set temperature curve, the AGV-2 sends an output signal to the 0-10 V DC or 3-point actuators of the air diffusers. The control unit will detect automatically the heating or cooling mode and regulate the air throw direction accordingly.

During the heating or room flushing phase, positive control of all diffusers or grilles is possible via the potential-free switch contract (5, timer) using the regulator W_S . After the switchover, the control signal returns to the W_K control circuit.

With a 0-10 V DC control, the drive signals W_K and W_S of the AGV-2 can be restricted to up to 50%, using an additional individual setpoint device ISG. This means that for diffusers to which an ISG device is connected, the penetration depth can be further reduced and restricted by means of the control circuit W_K or W_S . The ISG device is mounted at the workplace to permit personnel to adjust the diffuser according to their own personal requirements. With a 3-point control, no ISG device can be connected.

The LEDs indicate the current operating status (W_K signal, W_S signal). The voltmeter indicates the active output signal 0 - 10 V DC to the actuators. This allows a control at any time of the output signal 0 - 10 V DC to the actuators. With 3-point control, the actuating function OPEN/CLOSED is indicated by two LEDs (OPEN/CLOSED). A feedback potentiometer in one of the actuators signals the position of the diffusers and grilles to the AGV-2 unit.

The AGV-2 unit is prepared for wall mounting and should be

mounted readily accessible in the control room.

Using the AGV-2 unit requires the use of the duct temperature sensor K642 and the room temperature sensor R642. No other canal or room temperature sensor must be used.

The price of the AGV-2 unit includes the duct temperature sensor K642 and the room temperature sensor R642.

Controllable diffusers

The following diffusers and grilles with servomotor (24 V AC actuators with 0-10 V DC or 3-point control) can be controlled via the control unit type AGV-2:

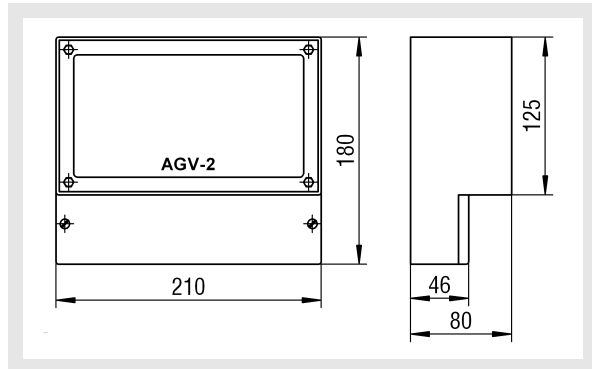
WGA-VG, IKA, IVA, PUSH and WDA.

Temperature Difference Control Unit Model AGV-2

Models and dimensions

Dimensions

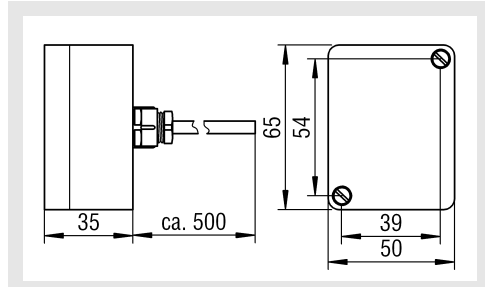
AGV-2



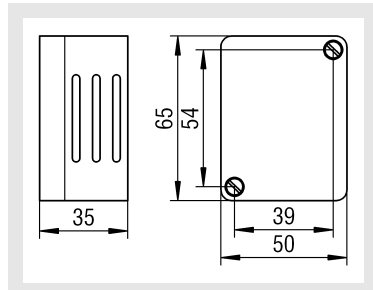
Temperature difference control unit AGV-2

Plastic housing	IP 54 surface-mounted
Supply voltage	24 V AC
Power consumption	8 VA
Actuator output signals	10 V DC
allowed ambient temperature	0-50 °C
Max. design temperature difference of the control unit	± 25 K
Max. number of servomotors	25 St.

Flexible duct temperature sensor type K642

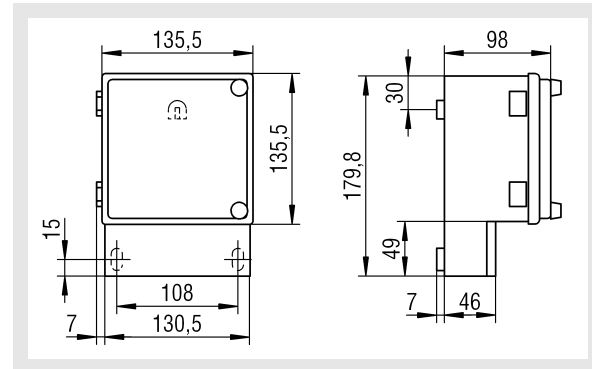


Room temperature sensor type R642



Dimensions of accessories

Digital seven-day timer



Supply voltage = 24 V AC ±10%

Protection type = IP 54

For two channels - which allow to switch independent circuits - eight switch-on and eight switch-off times can be programmed (2 x 16 = 32 memory locations).

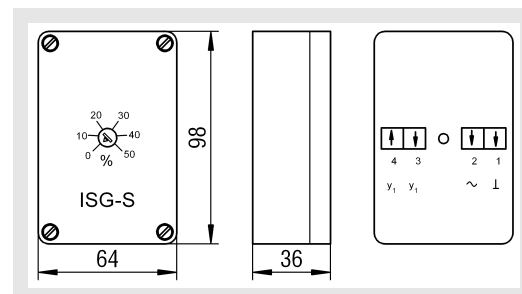
Individual setpoint device type ISG

If required, the individual setpoint device type ISG is available for individual setting of up to four diffusers or grilles (only possible for 0 - 10 V DC control).

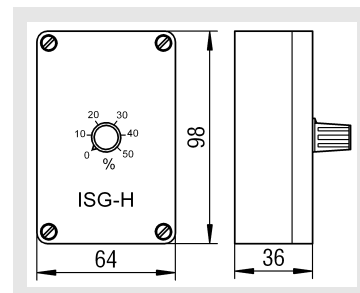
Supply voltage = 24 V AC ±10%

Protection type = IP 54

ISG-S



ISG-H

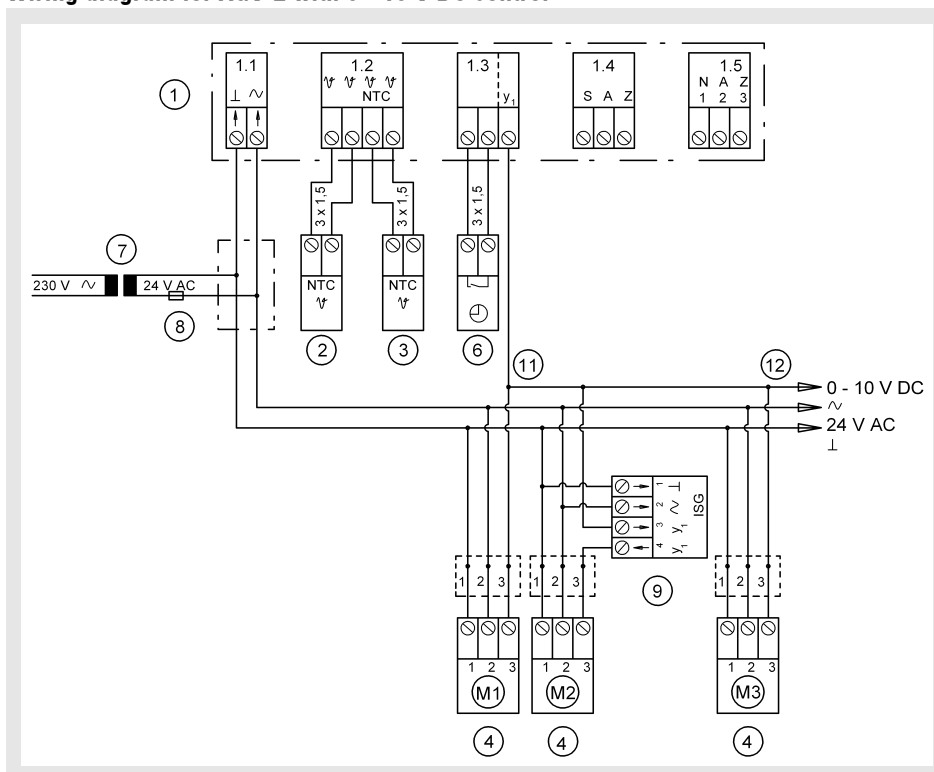


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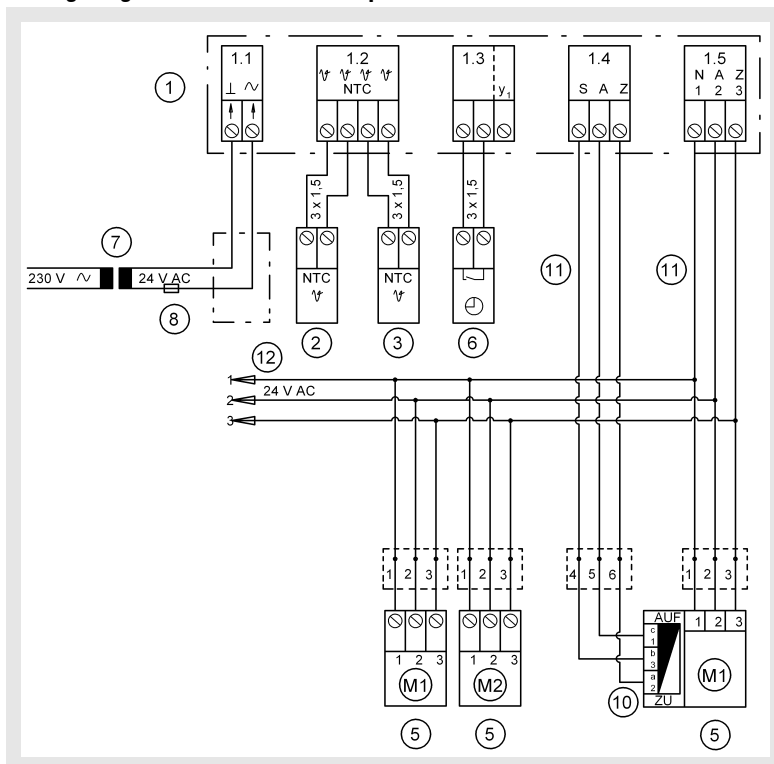
Technical Data

Circuit diagram

Wiring diagram for AGV-2 with 0 - 10 V DC control



Wiring diagram for AGV-2 with 3-point control

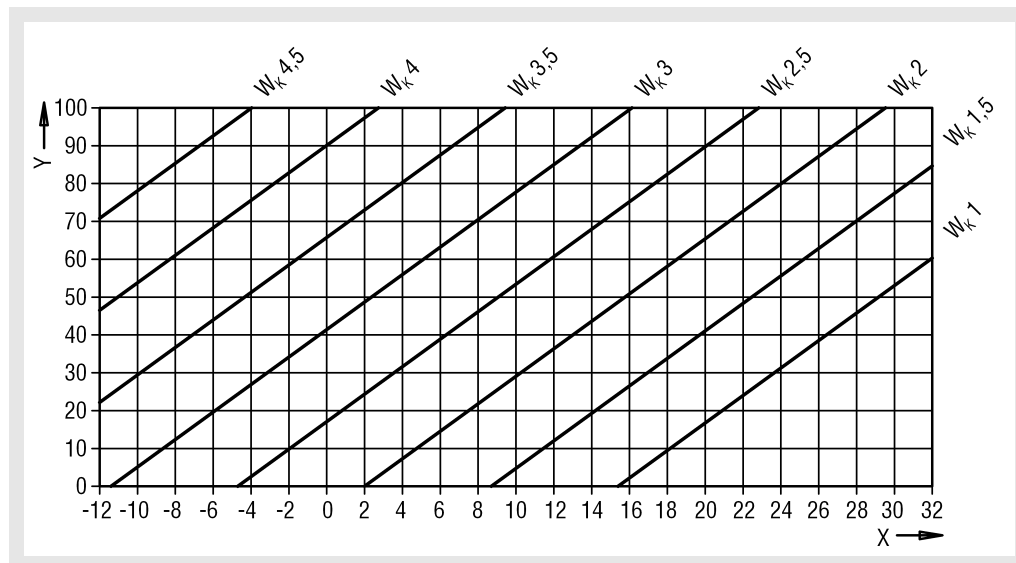


Explanation

- 1 Control unit type AGV-2 (Schako scope of delivery) (1.1 = Supply; 1.2 = Temperature sensor; 1.3 = Timer; 1.4 = Feedback position; 1.5 = 3-point control)
- 2 Flexible duct sensor (Schako scope of delivery)
- 3 Room sensor (Schako scope of delivery)
- 4 Air diffusers (with 0 - 10 V DC control)
- 5 Air diffusers (3-point activation)
- 6 Timer ZSU II (Schako scope of delivery)
- 7 Transformer 230 V / 24 V AC (on-site)
- 8 Fuse (on-site)
- 9 ISG individual setpoint device (Schako scope of delivery)
- 11 4 x 1.5 including protective earth conductor
3 x 1.5 excluding protective earth conductor
- 12 other diffusers

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Design data for AGV-2



Setting the required temperature difference at the control circuit W_K .

$X = \Delta T_0$ (K) Temperature difference

$Y = \%$ (vertical)

Resistance characteristic line for NTC K642 / R642

Temperature (°C)	Resistor	Temperature (°C)	Resistor
0	37,1	26	9,5
1	35,0	27	9,1
2	33,3	28	8,7
3	31,3	29	8,3
4	29,6	30	7,9
5	28,0	31	7,5
6	26,5	32	7,2
7	25,1	33	6,9
8	23,8	34	6,6
9	22,5	35	6,3
10	21,3	36	6,0
11	20,3	37	5,7
12	19,2	38	5,5
13	18,2	39	5,3
14	17,3	40	5,0
15	16,4	41	4,8
16	15,6	42	4,6
17	14,8	43	4,4
18	14,1	44	4,2
19	13,4	45	4,1
20	12,8	46	3,9
21	12,2	47	3,7
22	11,6	48	3,6
23	11,0	49	3,4
25	10,0		

Specification texts

Temperature difference control unit **type AGV-2** for regulating motor-driven adjustable air diffusers and grilles as a function of the temperature difference between supply air and room air, measured by duct and room sensors. For single-duct installations with constant volumetric flow. With an independently adjustable characteristic line and a potential-free contact for positive control of the corresponding diffusers and grilles.

Product: SCHAKO **type AGV-2**

- 0 - 10 V DC control
- 3-point control (one actuator must be fitted with a feedback potentiometer 0 - 1000 Ω)

Accessories:

- Individual setpoint device ISG for individual setting of a diffuser or grille (only available with 0 - 10 V DC control).
- Digital seven-day timer ZSU II with two switch contacts.