AP

Duct Humidity Hygrostat Two-step and 0-10V Output



Features:

- Two-stage unit
- On/Off, cw 0-10Vdc output
- Humidation and dehumidation
- Adjustable switching thresholds
- One continuous and two switching outputs
- Exact humidity measurement

Technical data	
Power supply	24Vac/dc (optional 230 Vac via external power supply unit)
Power consumption	< 2 VA /24 Vdc
Setting range	5 95 % r. H. (switch steps 1 and 2 are separately adjustable)
Operating difference	Mode 1 both switch steps are arbitrary adjustable Mode 2 5 % between both switch steps
Output	Potential-free changeover contacts (2 x changeover contact 24 V, separately adjustable, 1x 0 - 10 V ^= 0 - 100 % r. H.)
Sensors	Digital humidity sensor
Deviation, humidity	± 3 % r. H. (2090 %); at + 20 °C, other- wise ± 5 % r. H.
Long-term stability	±1% per year
Hysteresis	Max. 3 % r. H.
Sensor protection	Membrane filter, exchangeable
Enclosure temperature	- 10 °C+ 65 °C
Enclosure	Plastic, material polyamide, 30 % glass- globe-reinforced, with quick-locking screws (slotted / Phillips head combina- tion), colour pure white (similar RAL 9010)
Enclosure dimensions	108 x 70 x 73.5 mm (Thor II)
Cable gland	M16 x 1.5 ; including strain relief
Flow rate	Max. 8 m/s
Protective tube	Metal, 20 mm, nominal length NL = 190 mm
Protection class	III (according to EN 60 730)

Application

Electronic duct hygrostats and humidity sensors with one continuous and two switching outputs, adjustable switching thresholds, optional with or without display indicating the actual humidity, accuracy class \pm 3 % r. H.

They are used to control and monitor the relative humidity, e.g. in:

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ps , H.)	 ventilation ar laboratories production fa climatic test of indoor swimn greenhouses, 	nd air conditioning ducts acilities cabinets ming pools , etc.						
	to control humidifying and dehumidifying equipment.							
r-	These measuring transducers are designed for exact humidity measurement.							
	The DCH uses a digital long-term stable sensor as measuring ele- ment for humidity measurement.							
	Applications in dustfree, pollutant-free, non-aggressive air.							
S-								
ia-								
		Ordering Codes						
	DHE24	Duct Humidity Hygrostat without display						
00	DHE24 D	Duct Humidity Hygrostat with display						
90	DHE230	Duct Humidity Hygrostat without display						

DHE230 D Duct Humidity Hygrostat with display



Protection type	IP 65 (according to EN 60 529)
Electrical connection	0.14 - 2.5 mm ² , via terminal screws
Standards	CE conformity, EMC directive 2004 / 108 / EC
Optional	Single-line display, shifting, 36 x15 mm (W x H), for displaying ACTUAL humid- ity respectively for humidity setpoint adjustment
FUNCTION	
Humidifying	 1st step: Wire contacts 4 - 5. When actual humidity falls more than 3 % r. H. (hysteresis) below switch- ing threshold S1, changeover contact switches to 4 - 5. 2nd step: Wire contacts 7 - 8. When actual humidity falls more than 3 % r. H. (hysteresis) below switch- ing threshold S 2, changeover contact switches to 7 - 8.
	Terminal 2: 1x 0 - 10 V equivalent to 0100 % r. H.
Dehumidifying	1st step: wire contacts 5 - 6. When actual humidity exceeds switching threshold S 1, changeover contact switches to 5 - 6.
	2nd step: wire contacts 8 - 9. When actual humidity exceeds switching

threshold S 2,

changeover contact switches to 8 - 9. Terminal 2: 1x 0 - 10 V ^= 0 - 100 % r. H.

Type∕WG2	Setting Range Humidity	Output	Steps	Display			
DHE							
DHE	5 95 % r. H.	2 x Changeover contact, 1x 0 -10 V	two-step				
DHE D_DISPLAY	5 95 % r. H.	2 x Changeover contact, 1x 0 -10 V	two-step	х			
Extra charge	for 230 Vac supply voltage via external power supply unit						



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Dimensions:



Mounting and installation



Mode 1: Switch points for both relay outputs can be defined independent from each other in the range of 5 %... 95 % r. H. by turning control knobs (R 1 for relay 1, R 2 for relay 2, see schematic diagram). When the respective switch point is exceeded, the corresponding relay switches over (changeover contact W switches from position A to position B). When the preset switchpoint is undershot again by more than 3 % r. H. (hysteresis), the respective switching output switches back to the initial position (changeover contact W switches from position B to position A).

Mode 2: Only control knob R1 is active (R 2 without function)! The switchpoint for the first relay is defined in the range of 5 %... 95 % r. H. by turning control knob R 1 (see schematic diagram). The switch point for the second relay output is in mode 2 invariably defined as "switch point 1 + 5 % r. H." A hysteresis of 3 % r. H. is predefined for each switching output also in mode 2.



8 (W2) →

9 (B2) →

Relay 2 Changeover contact

Relay 2 Normally open contact

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Connecting diagram			S	chemati	c diagra	im						
I UB 24V AC/DC Output humidity 0-10V I Output humidity 0-10V I GND I Humidifying I Relay 1 I Dehumidifying			J1	1 Switching Switc					itchi eshc	hing		
7 Humidifying 8 Relay 2 9 Dehumidifying				r ŀ r	relative humidity for relay 1			relative humidity for relay 2				
Potential-free change-over contact 24 V				(5 %	\bigcirc	R1 95 %	559	<i>"</i> (D)R2 95 %	6	
Supply	AC	DC										
\rightarrow 1	24 V~	15 36 V DC			0	\overline{a}				$\overline{}$		
\rightarrow 3	0 V	GND			0	\oslash	\bigcirc	\oslash	$\underline{\oslash}$	\oslash	\oslash	<u> </u>
Output	AC	DC		+UB	Output	GND	A1	W1 Swite	B1 ching	A2 g out	W2 I put	B2
2 → (r. +.)	010 V	0 10 V		1	2	r	4	-	c	7	0	
4 (A1) →	Relay 1 Breaker conta	ct		1	Ζ	3	4	5	6	/	ð	9
5 (W1) →	Relay 1 Changeover contact		L									
6 (B1) \rightarrow Relay 1 Normally open contact												
7 (A2) →	Relay 2 Breaker conta	ct										



General Notes:

This device must only be used in non-precipitating air without above-atmospheric or below-atmospheric pressure at the sensor element.

To achieve optimum measurement results, provide for good intermixture of air at the measuring point.

Dust and contamination falsify measurement results and are to be avoided. Slight pollution and dust deposits can be removed by using compressed air.

Touching the humidity element is under any circumstances to be avoided, as that would result in considerable mismeasurements.

In case of pollution, we recommend cleaning and recalibration in the factory.

In any case, the sensor must not get in contact with chemicals or other cleaning agents.

Prevent these devices from exposure to direct influence of water, e.g. splash water.

If this device is operated beyond the specified range, all warranty claims are forfeited.

Our "General Terms and Conditions for Business" together with the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry" (ZVEI conditions) including supplementary clause "Extended Retention of Title" apply as the exclusive terms and conditions.

In additionIn addition, the following points are to be observed:

- These instructions must be read before installation and putting in operation and all notes provided therein are to be regarded!
- Devices must only be connected to safety extra-low voltage and under dead-voltage condition. To avoid damages and errors on the device (e.g. by voltage induction) shielded cables are to be used, laying parallel with current-carrying lines is to be avoided, and EMC directives are to be observed.

This device shall only be used for its intended purpose. Respective safety regulations issued by the VDE, the states, their control authorities, the TÜV and the local energy supply company must be observed. The purchaser has to adhere to the building and safety regulations and has to prevent perils of any kind.

No warranties or liabilities will be assumed for defects and damages arising from improper use of this device.

Consequential damages caused by a fault in this device are excluded from warranty or liability.

These devices must be installed by authorised specialists only.

The technical data and connecting conditions of the mounting and operating instructions delivered together with the device are exclusively valid.

Deviations from the catalogue representation are not explicitly mentioned and are possible in terms of technical progress and continuous improvement of our products.

In case of any modifications made by the user, all warranty claims are forfeited.

This device must not be installed close to heat sources (e.g. radiators) or be exposed to their heat flow. Direct sun irradiation or heat irradiation by similar sources (powerful lamps, halogen spotlights) must absolutely be avoided.

Operating this device close to other devices that do not comply with EMC directives may influence functionality.

This device must not be used for monitoring applications, which solely serve the purpose of protecting persons against hazards or injury, or as an EMERGENCY STOP switch for systems or machinery, or for any other similar safety-relevant purposes.

Dimensions of enclosures or enclosure accessories may show slight tolerances on the specifications provided in these instructions. Modifications of these records are not permitted.

In case of a complaint, only complete devices returned in original packing will be accepted.

These instructions must be read before installation and putting in operation and all notes provided therein are to be regarded!



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SUPPLY VOLTAGE:

For operating voltage reverse polarity protection, a one-way rectifier or reverse polarity protection diode is integrated in this device variant.

This internal one-way rectifier also allows operating 0 - 10V devices on AC supply voltage.

The output signal is to be tapped by a measuring instrument. Output voltage is measured here against zero potential (O V) of the input voltage!

When this device is operated on DC supply voltage, the operating voltage input UB+ is to be used for 15...36 V DC supply and UB – or GND for ground wire!



When several devices are supplied by one 24Vacvoltage supply, it is to be ensured that all "positive" operating voltage input terminals (+) of the field devices are connected with each other and all "negative" operating voltage input terminals (-) (= reference potential) are connected together (inphase connection of field devices).

All outputs of field devices must be referenced to the same potential!

In case of reversed polarity at one field device, a supply voltage short-circuit would be caused by that device.

The consequential short-circuit current flowing through this field device may cause damage to it.

Therefore, pay attention to correct wiring!

