

# Humidity Controllers



## DESCRIPTION

Single-stage and two-stage, watertight duct hygrostats.

## APPLICATION

Humidification, dehumidification, and high relative humidity limit control of air conditioning equipment.

## SPECIFICATIONS

<b>Type of operation</b>	On/Off, single-stage and two-stage switches
<b>Output</b>	1 to 2 SPDT, 24 to 250 VAC, 15(8) A
<b>Setpoint adjustment</b>	Dial knob, external or internal
<b>Sensing element</b>	Synthetic fiber, "can be saturated without damage"
<b>Humidity rate of change</b>	5% RH/min
<b>Permissible air velocity</b>	1575 ft/min (8 m/sec); 2970 ft/min (15 m/sec), with gauze protection
<b>Permissible ambient temperature</b>	
- Working	14°F to 149°F (-10°C to 65°C)
- Storage	-4°F to 158°F (-20°C to 70°C)
<b>Permissible ambient humidity</b>	100% RH
<b>Wire</b>	
- Connection	Screwed terminal
- Size	Maximum 13 AWG (2.5 mm <sup>2</sup> )
<b>Cable entry</b>	M20 fitting, replaceable by 1/2" conduit connection
<b>Housing</b>	
- Material	Byblend base, ABS cover, fire retardant, nickel-plated brass perforated for probe
- Color	Gray/dark gray
- Protection	NEMA 4 (IP65)
- Dimensions W x H x D	2.8 x 4.3 x 2.8 in (70 x 108 x 72 mm)
<b>Probe</b>	
- Dimensions ø x L	0.6 x 8.7 in (16 x 220 mm)
<b>Installation</b>	Duct mounted, sensor probe vertical, downwards, or horizontal



DBKH

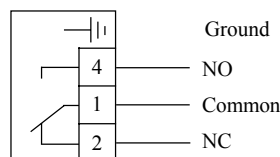
"Can be saturated without damage"

certified  
ISO 9001

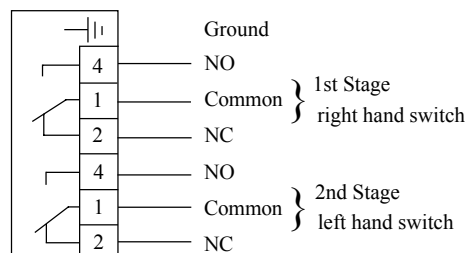
Scale Range % RH	Accuracy ± % RH	Differential			Dial Knob Setpoint Adjustment	Ship Weight lb (kg)	Part Number
		In the Stage % RH	Between the Stages % RH	Stages SPDT			
30 to 100	3-4	5-fixed	N/A	1	external	1.4 (0.7)	DBKH-10-US
					internal		DBKH-10U-US
30 to 100	3-4	5-fixed	6, factory set 3 to 18 adjustable	2	external	1.6 (0.75)	DBKH-20-US
					internal		DBKH-20U-US
High velocity protector gauze Probe protection tube against sun and rain Duct mounting bracket Wall mounting bracket							CH-VEL-GAUZE CHPP DBZ-24 DBZ-20/1

## WIRING DIAGRAM

DBKH-10



DBKH-20



Contact connection  
 Humidification: 1 to 4  
 Dehumidification: 1 to 2

**Attention**  
 Must avoid chemically aggressive atmosphere.

## Mounting Position Guidelines

- Position: Designed for duct mounting in any position, except with the probe tip pointed up.
- Duct Diameter: Recommended minimum diameter (round ducts) or width (square ducts) is 10 in. (256 mm).
- Air Stratification (when the unit is mounted on the discharge side of the fan): Recommended location is at least 8 ft. (2.4 m) downstream from humidification equipment, where duct air and water vapor are sufficiently mixed. Avoid areas where the probe may be exposed to condensation.

## Duct Probe Assembly & Mounting Instructions

1. Remove any excess insulation from the duct that prevents the probe from extending a minimum of 3 in. (76 mm) into the air stream.
2. Use the hole saw to make a 1/2 in. (12.7 mm) hole in the duct for inserting the probe.
3. Pull the plastic cover off the housing.
4. Insert the probe into the duct, and use the housing as a template to mark the location of the holes for the mounting for the mounting screws.
5. Remove the unit, and drill a 1/8 in. (3 mm) hole for each mounting screw.



### IMPORTANT:

Remove the unit before drilling to prevent any metal remnants from falling onto the circuit board.  
Seal any holes created during installation to help reduce drafts and for more accurate humidity readings.

6. Use a gasket, sealer, or other means to seal the area around the 1/2 in. (12.7 mm) hole between the unit and the duct.
7. Reinsert the probe, and secure the housing to the duct using the two No. 8 screws provided.

## Wiring Guidelines



### WARNING: Electrical Shock Hazard

Disconnect the power supply before wiring connections are made to prevent possible electrical shock or damage to the equipment.

Observe the following when wiring either type of element:

- Do not run low voltage wiring in the same conduit as line voltage wiring or other conductors that supply highly inductive loads.
- Use 18 or 24 AWG wire.
- Make all wiring connections in accordance with the National Electrical Code and all local regulations.

## Duct Probe Wiring Instructions

To wire a duct probe model:

1. Reroute the wires from the controller to the unit through the conduit hole in the housing.
2. Break out the appropriate knockout from the cover with pliers to accommodate the wiring or conduit if used.
3. Connect the wires to the appropriate terminals of the wiring block.
4. Press the cover onto the base.