TDC-BH-U Duct-Humidistat

Features

- Control for binary humidifiers and dehumidifiers with or without fan support.
- Low power energy consumption: < 1W per unit
- Relays switching for outputs each up to 300W
- Cost saving option with Economy functionality and set point limitations
- External sensor input for setpoint setback based on outdoor temperature
- Password protected programmable user and control parameters
    - Setpoint range limitation
    - Access control for setpoints and mode change
    - Access control for clock and time programs
    - Select your display contents
    - Selectable behavior after return from power failure
- Temperature display of external input in Celsius or Fahrenheit



Deluxe Version:

- Clock and time schedule functions
- Blue backlight for LCD

Applications

- Humidifiers:
    - On / Off type humidifiers
    - On / Off type humidifiers with single speed fan support
- Dehumidifiers:
    - On / Off type dehumidifiers
    - On / Off type dehumidifiers with single speed fan support
- Combination humidifiers and dehumidifiers without fan support

General description

The TDC-BH-U is a stand-alone electronic binary humidity stat. The TDC-BH-U features one internal humidity sensor, one external NTC temperature sensor input and two binary outputs (Relays).

A detailed parameterization is possible with the use of a simple configuration routine. The TDC-BH-U can be configured using the standard operation terminal. No special tools or software is required.

Ordering

Product Name	Product No.	Variant	Features
TDC-BH-U-W20 TDC-BH-U-W24 TDC-BH-U-W25	40-10 0059-20 40-10 0059-24 40-10 0059-25	standard humidifying de-humidifying	Binary controller with: 1 Internal humidity input 1 external temperature input (For set point shift) 1 DO (Relay) for humidifier or dehumidifier 1 DO (Relay) for fan (optional) -U = Conduit connector NPT 1/2 -W24 = Humidifying, US units/time pre-configured -W25 = De-humidifying, US units/time pre-configured -D = 7-day programmable
TDC-BH-U-D-W20 TDC-BH-U-D-W24 TDC-BH-U-D-W25	40-10 0060-20 40-10 0060-24 40-10 0060-25	deluxe humidifying de-humidifying	
Accessories			
SOD-Tn10-1	40-20 0108		Outdoor sensor
AES3-HT-A5	40-50 0104		Replacement humidity sensor 5% accuracy

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Technical specification

Caution! This device is intended to be used for comfort applications. Where a device failure endangers human life and/or property, it is the responsibility of the owner, designer and installer to add additional safety devices to prevent or detect a system failure caused by such a device failure. Vector Controls or its affiliates cannot be held liable for any damage caused by such a failure. Failure to follow specifications and local regulations may endanger life, cause equipment damage and void warranty.

Power supply	Operating voltage	24 V AC/DC ± 10 %, 50…60 Hz
	Power consumption	Max. 1.5 VA
	Electrical connection	Terminal Connectors, wire 0.34…2.5 mm^2 (AWG 24…12)
	Deluxe type only: Power backup for real time clock	 Min 48h if charged for 24h
Signal inputs	Humidity input: Range Accuracy Hysteresis	Element: Polymer-Based Capacity Sensor 0…100 % r.H. 10%...90% r.H. ± 5.0 % 0…10% and 90…100% ± 7.0 % ±1% r.H.
	Temperature input Range Accuracy	External NTC (Sxx-Tn10 sensor): -40…70 °C (-40…158 °F) -40…0 °C (-40…32 °F): 0.5 K 0…50 °C (32…122 °F): 0.2 K 50…70 °C (122…158 °F): 0.5 K
Signal outputs	Digital switching outputs Switching type AC Switching power	DO1…DO2 Relays 2(1.2) A, 250VAC (max fan power 300W)
Environment	Operation Climatic conditions Temperature Humidity	To IEC 721-3-3 class 3 K5 0°C …50°C (32°F…122°F) <95% R.H. non-condensing
	Transport & storage Climatic conditions Temperature Humidity Mechanical conditions	To IEC 721-3-2 and IEC 721-3-1 class 3 K3 and class 1 K3 -25°C…70°C (-13°F…158°F) <95% R.H. non-condensing class 2M2
Standards	CE conform according to EMC Standard 89/336/EEC EMEI Standard 73/23/EEC	 EN 61 000-6-1/ EN 61 000-6-3
	Product standards Automatic electrical controls for household and similar use Special requirement on humidity dependent controls	 EN 60 730 –1 EN 60 730 – 2 - 9
	Degree of protection	IP52 to EN 60 529
	Safety class	III (IEC 60536)
Housing	Cover, back part Filter material	Polycarbonate PC (UL94 class V-0) PTFE coated 1µm pores
General	Dimensions (H x W x D): Transmitter case: Probe:	 91 x 68 x 47mm (3.7” x 2.7” x 1.9”) ∅14 x 77 mm (∅ 0.55 x 3”)
	Weight (including package)	220g (7.8 oz)

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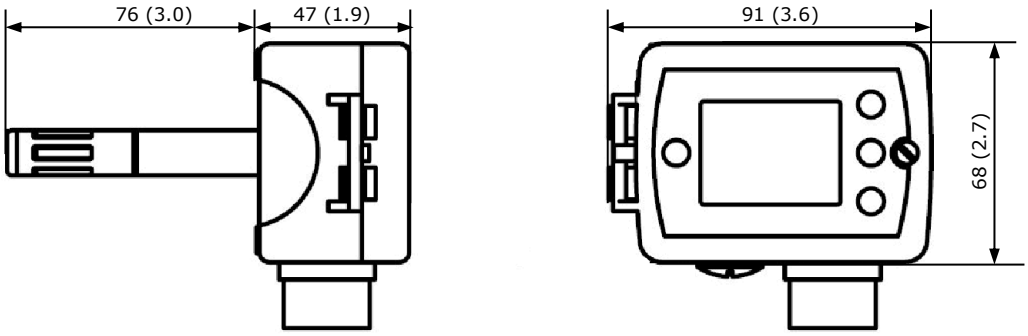
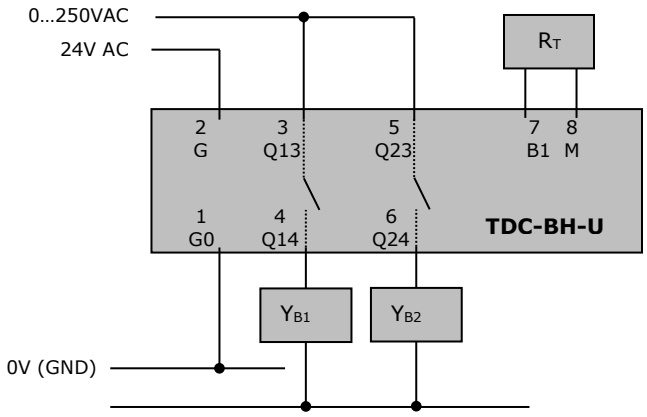
Dimensions mm (inch)



Wiring diagram



Description:

Connections depend on parameter CP10 and CP11!

CP10	YB1 DO1	YB2 DO2	RT
CP10 = 0	Humidify	Dehumidify	Temperature input for setback NTC 10kΩ @ 25°C (77°F)
CP10 = 1	Humidify	CP11 = ON: FAN	
CP10 = 2	If CP11 = ON: FAN	Dehumidify	

Selection of devices and sensors

External temperature sensors: Use only our approved NTC sensors to achieve maximum accuracy. Recommended is SDB-Tn10-15 as duct sensor and SOA-Tn10 as outdoor sensor.

Binary auxiliary devices: E.g. humidifiers, de-humidifiers and fans. Do not directly connect devices that exceed 2(1.2)A. Observe startup current on inductive loads!

Mounting and installation

Install the controller on the duct where the air stream is well mixed: for supply air two to three meters (6 to 10 ft) downstream from the nearest fan and coil, for return air close to the air inlet but downstream from a return fan if one is present.

Mount and connect the controller as shown in the installation sheet supplied with the device, and wire it according to the wiring diagram above.

Warning about storage, packaging and usage environment

The sensing part is a polymer, which measures the humidity in the ambient air. For proper sensor operation some mandatory precautions need to be taken during storage, packaging and usage.

The transmitter and its sensing element should not be packaged, stored or used in out-gassing plastic materials, which could cause sensor contamination. In particular, it is recommended not to use any glue or adhesive tapes (Sellotape, Scotch-Tape, Tesa-Film, etc.) within the package or close proximity of the sensor. Foamed materials often cause contamination problems and should not be used to package the transmitter. Best packaging material is a simple cardboard box or a deep-drawn plastic case in a cardboard box.

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Vector Controls LLC
USA

infous@vectorcontrols.com
www.vectorcontrols.com

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