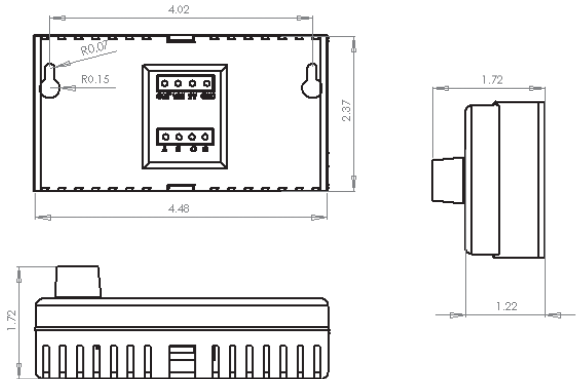


**MODEL HXHAM, HXHAMT
WALL HUMIDISTAT, PROPORTIONAL CONTROL**

**INSTALLATION AND
SPECIFICATION**

CARNES COMPANY 448 S. Main St., P. O. Box 930040, Verona, WI 53593-0040 Phone: (608)845-6411 Fax: (608)845-6504 www.carnes.com

INTRODUCTION



The Model HXHAM is a wall-mounted, microprocessor-controlled humidistat solution for cutting edge humidity control. The HXHAM employs a backlit LCD module, which displays both the ambient temperature and humidity of the surrounding air. The embedded software allows user navigation between temperature/humidity viewing mode and setpoint adjustment mode, and also outdoor temperature and humidity viewing mode*. The user can enable supported humidistat functions using four onboard switches, and an onboard pushbutton encoder is used to modify the setpoint and toggle between different viewing modes.

* - when temperature compensation mode is enabled and an optional temperature compensation kit is purchased.

FUNCTIONALITY

Temperature and Humidity Viewing Mode



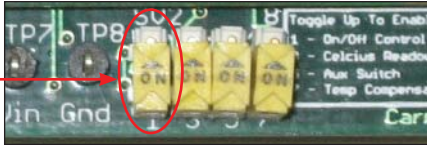
The temperature/humidity viewing mode (shown above) displays the temperature and humidity of the surrounding air, along with a "T" symbol on the far right hand side indicating the humidistat is calling for demand. This is the home screen and is shown during normal operation.

Setpoint Adjustment Viewing Mode



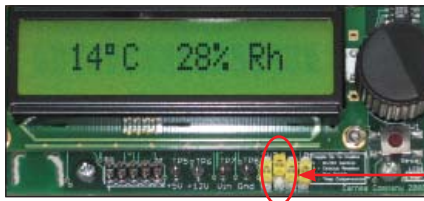
Pressing the pushbutton encoder inwards toggles the viewing mode to setpoint adjustment (shown above). In this mode, the setpoint adjustment encoder is used to modify the setpoint of the HXHAM. The LCD display shows the current humidity setpoint the humidistat is operating. The humidity setpoint is modified by turning the knob clockwise (increasing the humidity setpoint) or counter clockwise (decreasing the humidity setpoint). When the desired humidity setpoint is obtained, press the knob again to confirm the setpoint and return to the humidistat to the humidity/temperature viewing mode. If the knob is inactive in setpoint adjustment mode for more than a minute, the humidistat automatically confirms the current humidity setpoint indicated on the LCD and returns to the humidity/temperature viewing mode.

On/Off or Proportional Control



The first (*farthest left*) adjustable switch controls whether the unit is in proportional control mode or on/off control mode. When the switch is down, the unit is in proportional mode. When it is up, the unit is in on/off mode. In on/off mode, the output voltage signal is either 0 or 10 Volts. This limits the humidifier to either run at full capacity when there is a humidity demand, or turn off when there is no demand. In proportional mode, the output signal to the humidifier varies between 0-10 Volts, this mode has the benefit of being able to adjust the unit to operate at a percentage of its full capacity. Proportional mode allows the humidifier to regulate at a more precise humidity level (between 1-2% from setpoint), whereas the on/off mode has a wider regulatory band but can have some added operational benefits, including decreased energy consumption.

Fahrenheit or Celsius Temperature Display



The second (*middle*) adjustable switch controls whether the unit displays its temperature reading in Celsius or Fahrenheit. If the switch is high (on), the humidistat will display Celsius. If it is low (off), the humidistat will display Fahrenheit.

Enabling Temperature Compensation



The fourth (*farthest right*) function switch enables or disables the temperature compensation option available with the HXHAMT external sensor. A high (on) switch enables temperature compensation while a low (off) switch disables it. If temperature compensation is enabled without an attached sensor, the operating setpoint will be limited to 15% Relative Humidity, and temperature compensation screen will indicate "No Sensor". More on this ability is explained below.

HXHAMT (Temperature Compensation Option)



If a temperature compensation kit is purchased with the humidistat, and temperature compensation is enabled by turning the fourth function switch high (on), pressing the pushbutton encoder inwards from the home temperature/humidity screen brings you to the outdoor sensor temperature/humidity screen (shown above). From this screen, the temperature and humidity of the surrounding air of the attached sensor is shown. This is very similar to the previous temperature/humidity home screen, except the demand "T" symbol is replaced by an "*", indicating the temperature being displayed is from the outdoor sensor.

If the temperature sensed on the external sensor is below a certain threshold, the humidistat will automatically adjust the operating setpoint if it senses that the outdoor temperature is low enough to cause condensation problems on windows and siding.

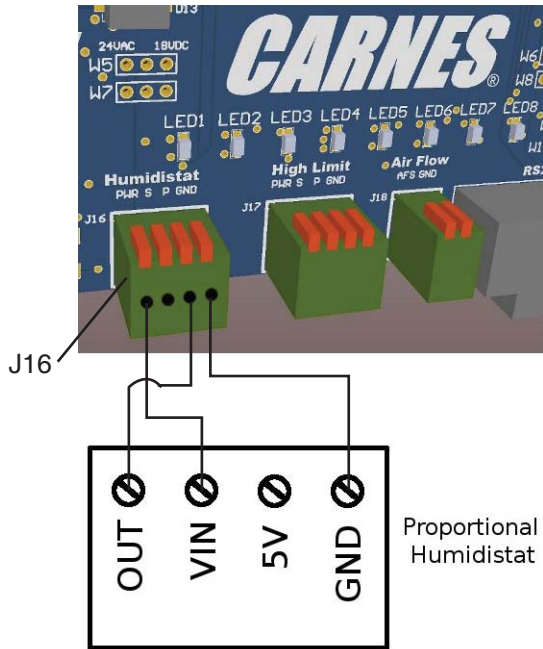


Pressing the pushbutton encoder again will bring the humidistat mode into setpoint adjustment. Similar to operation without an external sensor, the LCD displays the current humidity setpoint the humidistat is operating. However, with temperature compensation enabled, if the humidistat is overriding and automatically adjusting the operating setpoint, both the user setpoint and the operating setpoint will be displayed (shown above). Here, the user setpoint can still be adjusted normally. If the user setpoint is adjusted less than or equal to the operating setpoint, the user setpoint and the operating setpoint will be the same and only the user setpoint will be displayed. If the humidistat is left in setpoint adjustment mode for more than a minute without activity, the humidistat will automatically return to the home temperature/humidity viewing mode.

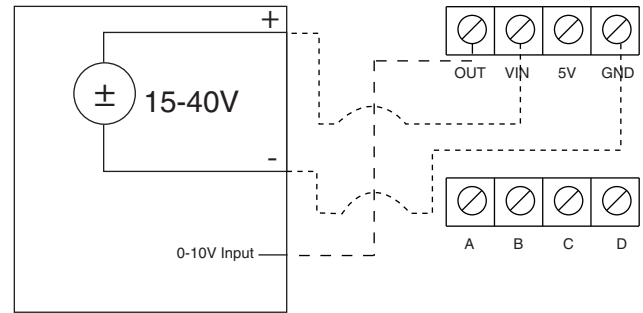
IF YOU ARE USING “H” DESIGN SERIES HUMIDIFIER UNITS:

INSTALLATION

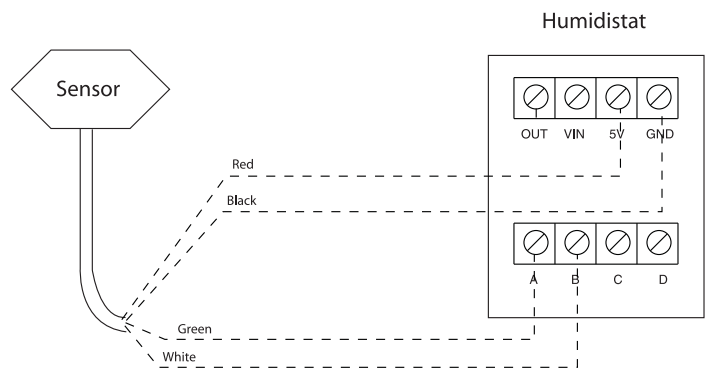
Besides operating on Carnes humidifiers, the HXHAM is capable of operating on most humidifiers sourcing 24VAC as well as DC voltages between 15 and 40 Volts.



15-40 VDC HOOKUP



TEMPERATURE COMPENSATION HOOKUP

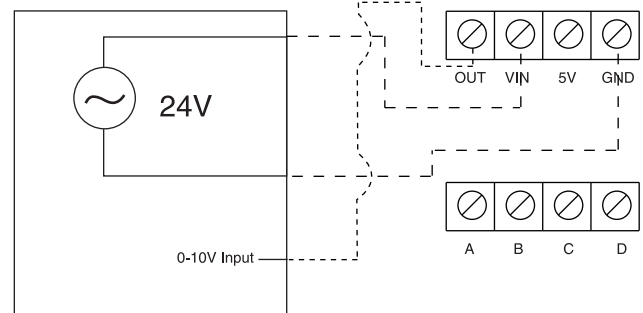


Temperature/Humidity Offset Adjustment

*****This procedure should only be attempted with proper test equipment available. Improper calibration will decrease the effectiveness of the humidistat.***

Put the third yellow switch (#5-Aux) in the up position. Press the reset button on the right hand side of the humidistat under the encoder. The green LED under the button should light momentarily. The humidistat will then go into a calibration mode that looks exactly like the humidity/temperature display mode. The difference is that you will be able to adjust these values with the encoder. Attempt to adjust the temperature so that it is similar to that displayed on your test equipment. (Careful to make sure the sensing equipment is testing ambient air, i.e., not next to a heat source.) Press the encoder to confirm the temperature, then turn the encoder again to adjust the humidity. Press the encoder down to confirm the humidity. Move the third yellow switch back down. Press the reset button. The humidistat is now in normal operation mode.

24VAC HOOKUP



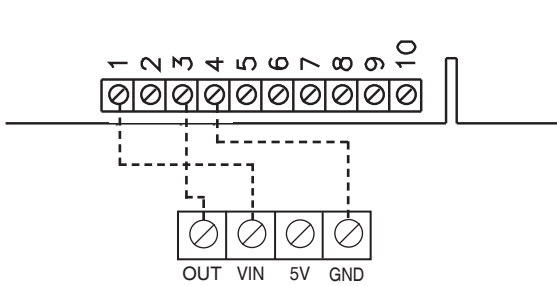
If you are using “G” design series humidifier units see next page...

IF YOU ARE USING "G" DESIGN SERIES HUMIDIFIER UNITS:

INSTALLATION

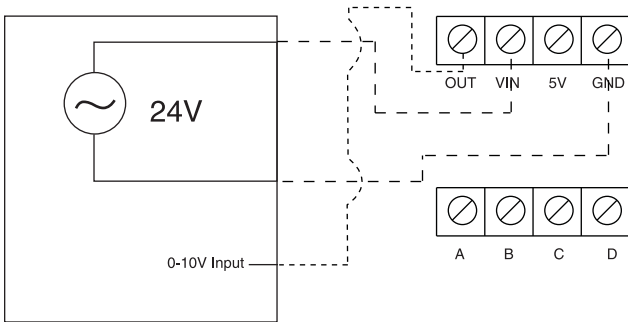
Besides operating on Carnes humidifiers, the HXHAM is capable of operating on most humidifiers sourcing 24VAC as well as DC voltages between 15 and 40 Volts.

WHEN USED TO CONTROL ROOM RELATIVE HUMIDITY CONTROL CONNECTION TERMINALS - "G" DESIGN HUMIDIFIERS

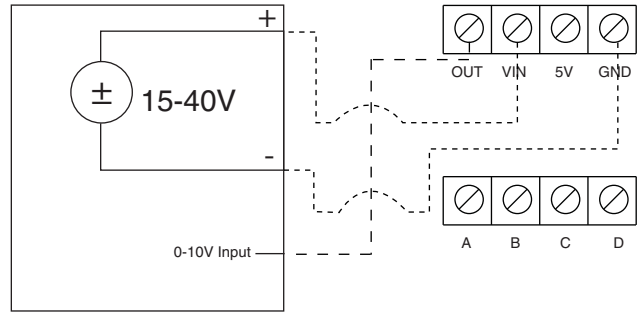


HUMIDISTAT

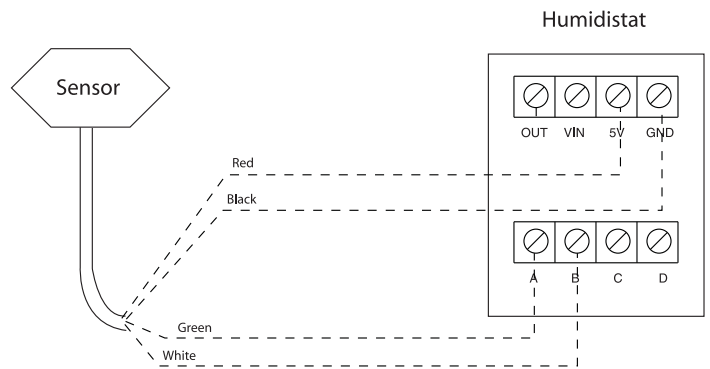
24VAC HOOKUP



15-40 VDC HOOKUP



TEMPERATURE COMPENSATION HOOKUP

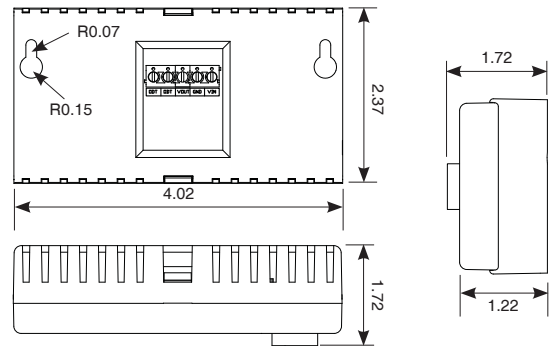


**MODEL HXHAM, HXHAMT
WALL HUMIDISTAT, PROPORTIONAL CONTROL
VERSION 2**

**INSTALLATION AND
SPECIFICATION**

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* - when temperature compensation mode is enabled and an optional temperature compensation kit is purchased.

FUNCTIONALITY

Temperature and Humidity Viewing Mode



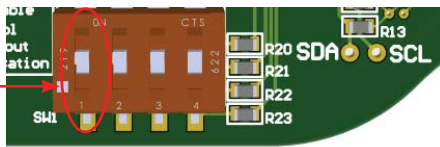
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Setpoint Adjustment Viewing Mode



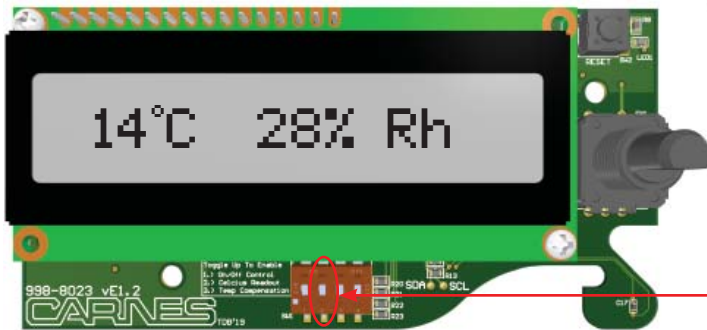
Pressing the pushbutton encoder inwards toggles the viewing mode to setpoint adjustment (shown above). In this mode, the setpoint adjustment encoder is used to modify the setpoint of the HXHAM. The LCD display shows the current humidity setpoint the humidistat is operating. The humidity setpoint is modified by turning the knob clockwise (increasing the humidity setpoint) or counter clockwise (decreasing the humidity setpoint). When the desired humidity setpoint is obtained, press the knob again to confirm the setpoint and return to the humidistat to the humidity/temperature viewing mode. If the knob is inactive in setpoint adjustment mode for more than a minute, the humidistat automatically confirms the current humidity setpoint indicated on the LCD and returns to the humidity/temperature viewing mode.

On/Off or Proportional Control



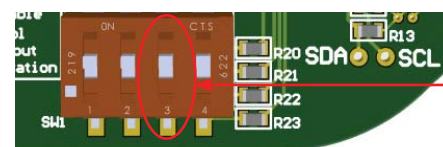
The first (*farthest left*) adjustable switch controls whether the unit is in proportional control mode or on/off control mode. When the switch is down, the unit is in proportional mode. When it is up, the unit is in on/off mode. In on/off mode, the output voltage signal is either 0 or 10 Volts. This limits the humidifier to either run at full capacity when there is a humidity demand, or turn off when there is no demand. In proportional mode, the output signal to the humidifier varies between 0-10 Volts, this mode has the benefit of being able to adjust the unit to operate at a percentage of its full capacity. Proportional mode allows the humidifier to regulate at a more precise humidity level (between 1-2% from setpoint), whereas the on/off mode has a wider regulatory band but can have some added operational benefits, including decreased energy consumption.

Fahrenheit or Celsius Temperature Display

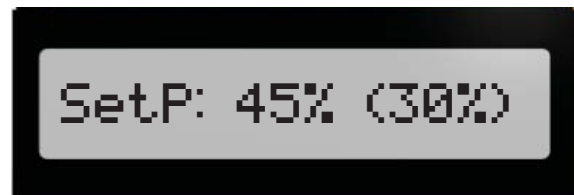


The second (*middle*) adjustable switch controls whether the unit displays its temperature reading in Celsius or Fahrenheit. If the switch is high (on), the humidistat will display Celsius. If it is low (off), the humidistat will display Fahrenheit.

Enabling Temperature Compensation



The third (*middle*) function switch enables or disables the temperature compensation option available with the HXHAMT external sensor. A high (on) switch enables temperature compensation while a low (off) switch disables it. If temperature compensation is enabled without an attached sensor, the operating setpoint will be limited to 15% Relative Humidity, and temperature compensation screen will indicate “No Sensor”. More on this ability is explained below.

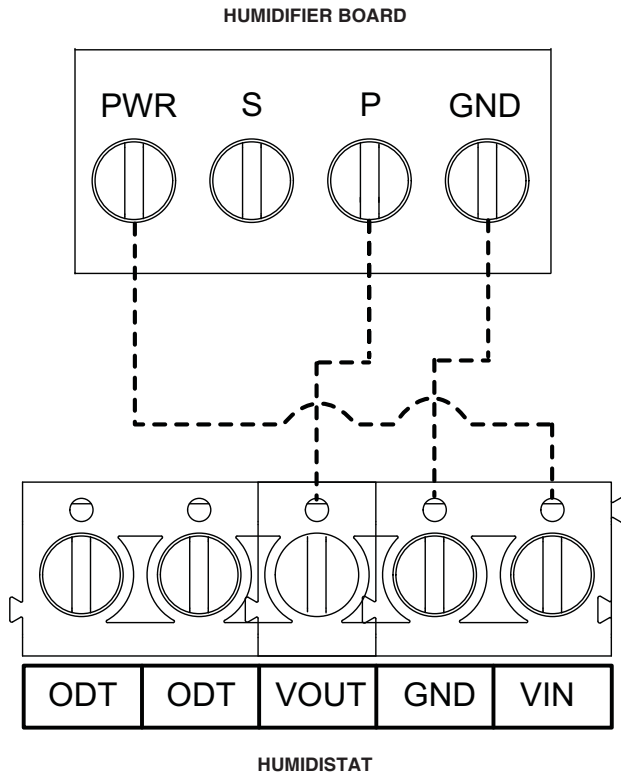


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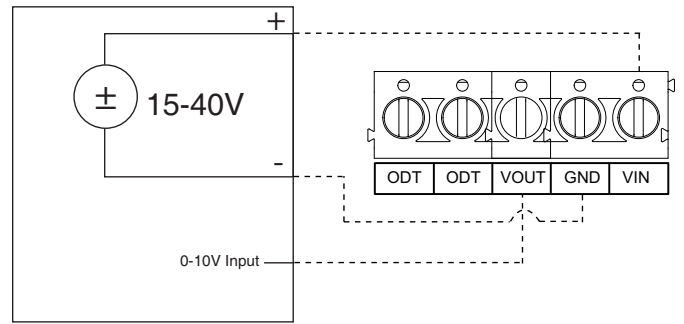
IF YOU ARE USING “H” DESIGN SERIES HUMIDIFIER UNITS:

INSTALLATION

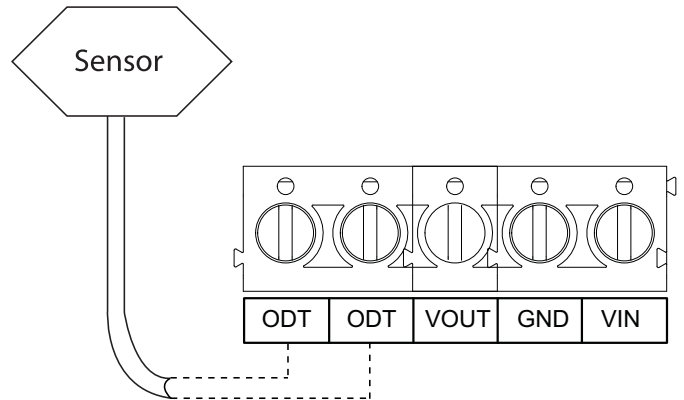
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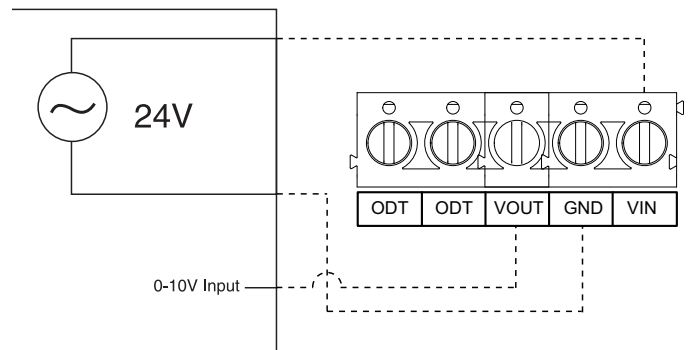
15-40 VDC HOOKUP



TEMPERATURE COMPENSATION HOOKUP



24VAC HOOKUP



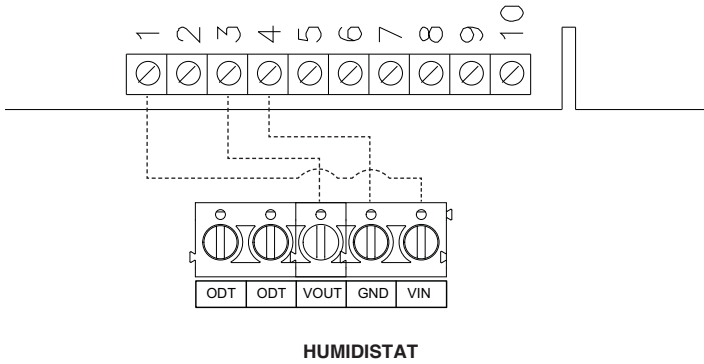
If you are using “G” design series humidifier units see next page...

IF YOU ARE USING "G" DESIGN SERIES HUMIDIFIER UNITS:

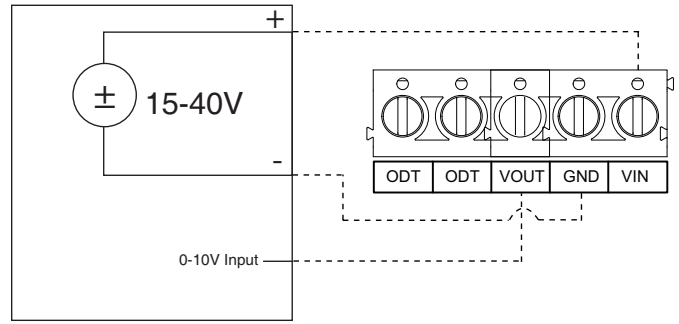
INSTALLATION

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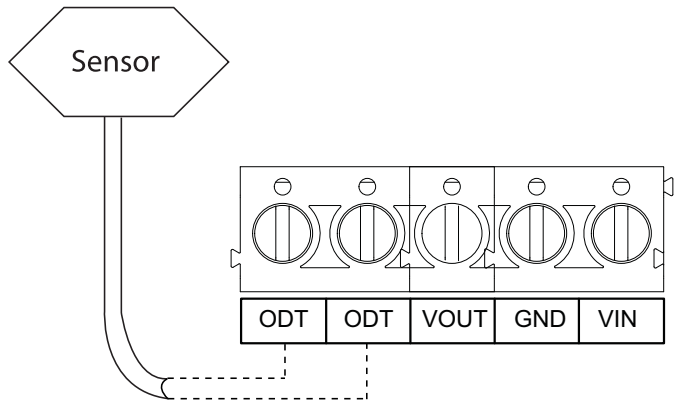
WHEN USED TO CONTROL ROOM RELATIVE HUMIDITY CONTROL CONNECTION TERMINALS - "G" DESIGN HUMIDIFIERS



15-40 VDC HOOKUP



TEMPERATURE COMPENSATION HOOKUP



24VAC HOOKUP

