

HE-6800 Series Humidity Transmitters with Temperature Sensor

Product Bulletin

HE-68xx-xN00WS

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The HE-6800 Series Humidity Transmitters with Temperature Sensor provide both humidity and temperature sensing in room wall-mount applications. The transmitter offers local warmer/cooler temperature setpoint adjustment and temporary occupancy override. The humidity sensor provides Relative Humidity (RH) accuracy of $\pm 2\%$ or $\pm 3\%$ RH and measures RH over the entire range of 0 to 100%.

A warmer/cooler dial is included on certain models for minor temperature adjustments from the setpoint. All models feature an occupancy override button that allows the user to override time-of-day scheduling when the space is occupied outside of the normal occupied hours schedule. The transmitter also includes DIP switches to enable or disable override and Light-Emitting Diode (LED) functions. In addition, all models feature a user-selectable 0 to 5 VDC or 0 to 10 VDC humidity output switch, and a power supply selection switch.

The HE-6800 Series Humidity Transmitters include screw terminal block terminations that provide flexibility for field wiring. All models include a 6-pin modular jack access port for connecting accessories to the Zone Bus. This feature allows a technician to commission or service the controller via the transmitter.



Figure 1: HE-6800 Series Humidity Transmitters with Temperature Sensor

Table 1: Features and Benefits

Features	Benefits
Controller Configuration DIP Switch	Allows users to adjust the room comfort and choose occupancy features that match the application and transmitter.
Power Supply Selection Switch	Enables transmitter use in high input voltage applications.
User-Selectable Humidity Output	Provides either a 0 to 5 VDC or 0 to 10 VDC output for compatibility with various controllers.
Occupancy Light-Emitting Diode (LED) Indicator	Displays the current operating mode of the controller (VMA12 and VMA14 Series only).
Manual Override Pushbutton (PB)	Overrides time-of-day scheduling when the space is occupied outside of normal occupied hours schedule.
Warmer/Cooler Setpoint Dial (Select Models)	Allows for minor temperature adjustments from the setpoint.

Product Overview

A manual override PB allows the occupant to control the space temperature. This feature allows the end user to signal the controller that the space is occupied after hours or on weekends.

An LED is standard for all models. When used with a VMA12 or VMA14 Series Controller, the green LED displays the current operating mode of that controller: On = Occupied, Off = Unoccupied, and Flashing = Standby.

The controller compatibility DIP switch programs the HE-6800 Series Humidity Transmitter to:

- disable the PB and LED indicator
- enable the PB with LED indicator
- enable the PB without LED indicator

The DIP switch matches the PB and LED indication with features recognized by more recent Johnson Controls® controllers. Specifically, the DIP switch allows for matching controller features to disable the occupancy LED and/or PB.

The HE-6800 Series Humidity Transmitter also features a 0 to 10 VDC or 0 to 5 VDC selector DIP switch and a power supply selection DIP switch. The VDC output selector switch enables you to change the output for % RH. The power supply DIP switch enables you to use the transmitter in high input voltage applications (such as 24 VAC).

The HE-6800 Series Humidity Transmitter has terminal block wiring connections, and includes a selection of a 1000-ohm nickel, 1000-ohm platinum, or 10,000-ohm thermistor temperature sensing element. The unit can be used with Application Specific Controllers (ASCs) or for universal applications.

IMPORTANT: The HE-6800 Series Humidity Transmitter and Temperature Sensor is intended to provide an input to equipment under normal operating conditions. Where failure or malfunction of the transmitter could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn of or protect against failure or malfunction of the transmitter.

Ordering Information

To order an HE-6800 Series Humidity Transmitter, contact the nearest Johnson Controls representative. Specify the desired transmitter product code number from Table 2 and accessories from Table 3.

Table 2: HE-6800 Series Humidity Transmitter with Temperature Sensor Product Code Numbers

Product Code Number	Temperature Sensing Element	Humidity Accuracy (% RH)	Warmer/Cooler Temperature Setpoint Adjustment Override	Enclosure Dimensions (mm)
HE-68N2-0N00WS	Nickel	±2%	No	80 x 80
HE-68N3-0N00WS	Nickel	±3%	No	80 x 80
HE-68N2-1N00WS	Nickel	±2%	Yes	80 x 80
HE-68N3-1N00WS	Nickel	±3%	Yes	80 x 80
HE-68P2-0N00WS	Platinum	±2%	No	80 x 80
HE-68P3-0N00WS	Platinum	±3%	No	80 x 80
HE-68P2-1N00WS	Platinum	±2%	Yes	80 x 80
HE-68P3-1N00WS	Platinum	±3%	Yes	80 x 80
HE-6863-0N00WS	10,000 Thermistor	±3%	No	80 x 80
HE-6863-1N00WS	10,000 Thermistor	±3%	Yes	80 x 80

Table 3: Optional Accessories

Product Code Number	Description
ACC-INSL-0 ¹	Wallbox Mounting Pad (10 per Bag)
ACC-INSL-1 ¹	Surface Mounting Pad (10 per Bag)
NS-WALLPLATE-0	Adapts an HE-6800 Series Humidity Transmitter (3-3/16 x 3-3/16 in. [80 x 80 mm]) to a Standard 3-3/16 x 4-3/4 in. (80 x 120 mm) Wallbox
T-4000-119	Allen-Head Adjustment Tool (30 per Bag)

1. These foam pads help prevent drafts from entering the unit through the wall, and make installation easier when mounting on an uneven surface.

Repair Information

If the HE-6800 Series Humidity Transmitter fails to operate within its specifications, replace the unit. For a replacement transmitter, contact the nearest Johnson Controls representative.


IMPORTANT: The Printed Circuit Board (PCB) is retained with a tamper-resistant mechanism. Removal of the PCB from the plastic housing will void the product warranty.

Technical Specifications

HE-6800 Series Humidity Transmitters with Temperature Sensor (Part 1 of 2)

Power Requirements		4.5 to 7.5 mA at 14 to 30 VDC and 5K ohm Load, or 18 to 25 mA at 20 to 30 VAC and 5K ohm Load	
Terminations		9-Position Screw Clamp Terminal Block	
Wire Size		16 to 24 AWG (1.3 to 0.6 mm Diameter); 18 AWG (1.0 mm Diameter) Recommended	
Temperature Measurement Range		32 to 131°F (0 to 55°C)	
Humidity Measurement Range	Full Range	0 to 100% RH	
	Calibrated Range	10 to 90% RH	
Temperature Sensor	Nickel (HE-68Nx Models)	Sensor Type	1,000 ohm Thin Film Nickel
		Coefficient	Approximately 3 ohm per F° (5.4 ohm per C°)
		Reference Resistance	1,000 ohm at 70°F (0°C)
		Accuracy	±0.34F° at 70°F (±0.18C° at 21°C)
	Platinum (HE-68Px Models)	Sensor Type	1,000 ohm Thin Film Platinum
		Coefficient	Approximately 2 ohm per F° (3.9 ohm per C°)
		Reference Resistance	1,000 ohm at 32°F (0°C)
		Accuracy	±0.35F° at 70°F (±0.19C° at 21°C)
	Nonlinear NTC, Thermistor, Type II (HE-686x Models)	Sensor Type	10,000 ohm NTC Thermistor
		Coefficient	Nonlinear NTC, Johnson Controls Type II
		Reference Resistance	10,000 ohm at 77°F (25°C)
		Accuracy	±0.9F° (±0.5C°) at 32 to 158°F (0 to 70°C)

HE-6800 Series Humidity Transmitters with Temperature Sensor (Part 2 of 2)

Humidity Sensor Type		Capacitive Polymer Sensor
Humidity Element Accuracy	HE-68x2 Models	±2% RH for 20 to 80% RH at 50 to 95°F (10 to 35°C); ±4% RH for 10 to 20% RH and 80 to 90% RH at 50 to 95°F (10 to 35°C)
	HE-68x3 Models	±3% RH for 20 to 80% RH at 77°F (25°C); ±6% RH for 10 to 20% RH and 80 to 90% at 77°F (25°C)
Setpoint Range		Warmer/Cooler
Temperature Sensor Time Constant		10 Minutes at 10 ft per Minute
Manual Override		Integral Momentary Pushbutton (DIP Switch Selectable)
LED		Green LED Indicates Three Modes of Operation (VMA12 and VMA14 Series Controllers Only)
Ambient Operating Conditions		32 to 131°F (0 to 55°C), 10 to 95% RH Noncondensing; 86°F (30°C) Maximum Dew Point
Ambient Storage Conditions		-40 to 140°F (-40 to 60°C), 5 to 95% RH Noncondensing; 86°F (30°C) Maximum Dew Point
Materials		White Thermoplastic Protection: IP30 (EN 60529)
Dimensions (H x W x D)	HE-68xx-0 Models	3-3/16 x 3-3/16 x 1-5/16 in. (80 x 80 x 32 mm)
	HE-68xx-1 Models	3-3/16 x 3-3/16 x 1-7/16 in. (80 x 80 x 35 mm)
Shipping Weight		0.44 lb (0.20 kg)
Compliance 	United States	UL Listed, File E107041, CCN PAZX, Under UL 916, Energy Management Equipment
	Canada	UL Listed, File E107041, CCN PAZX7, Under CAN/CSA C22.2 No. 205, Signal Equipment
	Europe	CE Mark – Johnson Controls, Inc., declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC. WEEE Directive 2002/96/EC RoHS Directive 2002/95/EC
	Australia and New Zealand	C-Tick Mark, Australia/NZ Emissions Compliant

The performance specifications are nominal and conform to acceptable industry standard. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

United States Emissions Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the users will be required to correct the interference at their own expense.

Canadian Emissions Compliance

This Class (A) digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.
Cet appareil numérique de la Classe (A) respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.



Building Efficiency

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