

# Hx-68P3 Series Outside Humidity and Temperature Transmitters

## Product Bulletin

HE-68P3-0N000, HT-68P3-0N000

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The Hx-68P3 Series Outside Humidity and Temperature Transmitter measures and transmits outside relative humidity (RH) from 0 to 100% and temperatures from -40 to 140°F (-40 to 60°C). In addition to RH, the transmitter offers selectable parameters including dew point, wet bulb temperature, and enthalpy.

The humidity sensor is impervious to dust and most chemicals and is not damaged by condensation. The weather shield protects the sensors from solar radiation and precipitation without affecting performance. The multiple discs have a unique profile that permits easy passage of air. The disc material is especially formulated for high reflectivity, low thermal conductivity and maximum weather resistance. This rugged enclosure will assure a long life, even under extreme weather conditions.



The sensor and shield function as one unit for optimal performance. Mount the transmitter outside on a pole or on a side of a building. It requires no routine maintenance or recalibration.

**Table 1: Features and Benefits**

Features	Benefits
<b>0 to 100% RH</b>	Offers a full range of accurate RH measurement.
<b>Rugged shield construction</b>	Protects sensors from solar radiation and precipitation without affecting performance.
<b>Multiplate shield design</b>	Maximizes airflow for precise RH and temperature readings.
<b>Excellent long-term stability</b>	Provides accurate RH measurement over long periods of time without degeneration.
<b>No routine maintenance or calibration</b>	Ensures low maintenance cost.
<b>Two wire loop powered connection 4 to 20 mA or four wire 0 to 10 VDC looped power-output</b>	Enables easy installation.
<b>Polymer thin film sensor</b>	Omits inaccuracies due to dust, water vapor, harsh environments, and most chemicals.
<b>Negligible temperature coefficient</b>	Ensures that temperature changes are immaterial to accurate RH measurement.

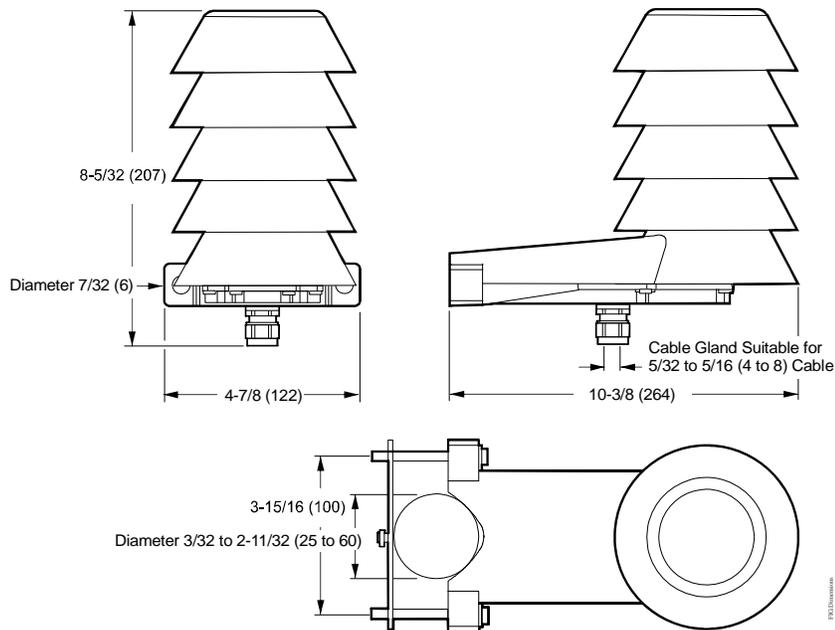
## Application

**IMPORTANT:** The Hx-68P3 Series Outside Humidity and Temperature Transmitter 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.

The right humidity makes it possible to optimize energy consumption. Energy management projects with hundreds of setpoints may have only one outdoor humidity sensor. If that sensor is not accurate, energy costs may rise and building comfort may suffer. The maintenance-free, accurate, year-after-year service of our transmitters keeps energy costs low and building comfort high. The sensors are compatible with most energy management systems.

Humidity is an important aspect of any climate control system. The significance of indoor air quality to our health has become evident. Humans are best suited to and feel most comfortable at certain humidities and temperatures, whereas excessively high or low humidities or temperatures cause discomfort. Accurate outdoor humidity measurement means that steps can be taken indoors to ensure a quality building environment.

## Dimensions



**Figure 1: Hx-68P3 Series Outside Humidity and Temperature Transmitter Dimensions, in. (mm)**

## Repair Information

If the Hx-68P3 Series Humidity Transmitter fails to operate within its specifications, replace the unit. For a replacement transmitter, contact the nearest Johnson Controls® representative.

## Ordering Information

Code Number	Description
HE-68P3-0N000	Outdoor RH Transmitter with Temperature Sensor, 10 VDC Output
HT-68P3-0N000	Outdoor RH Transmitter with Temperature Sensor, 4 to 20 mA Output

## Technical Specifications

### *Hx-68P3 Series Outside Humidity and Temperature Transmitters (Part 1 of 2)*

Operating Conditions	Temperature	-40 to 140°F (-40 to 60°C)
	Humidity	0 to 100% RH
Relative Humidity	Measurement range	0 to 100% RH
	Accuracy: Temperature Range 50 to 86°F (10 to 30°C): 0 to 90% RH 90 to 100% RH	±3% RH ±5% RH
	Accuracy: Temperature Range -4 to 50°F (-20 to 10°C) 86 to 140°F (30 to 60°C): 0 to 90% RH 90 to 100% RH	±5% RH ±7% RH
	Accuracy: Temperature Range -40 to -4°F (-40 to -20°C): 0 to 100% RH	±7% RH
	Stability in typical HVAC app.	±2% RH over 2 years
Temperature	Measurement range	-40 to 140°F (-40 to 60°C)
	Accuracy at 68°F (20°C)	±0.54°F (±0.3°C)
	Temperature dependance	±0.01°C/°C
	Temperature sensor	Pt1000 RTD Class F0.1 IEC60751
Dewpoint	Accuracy at 68°F (20°C) and 80% RH	±1.6°F (±0.9°C)
Wet Bulb		±1.3°F (±0.7°C)
Enthalpy		±0.9 BTU/lb (±2kJ/kg)
Ingress Protection		IP65
Maximum Wind/Flow Speed		98.42 ft/s (30 m/s)
Storage Temperature		-40 to 140°F (-40 to 60°C)
Current Output (HT-68P3-0N000) (Two-Wire)	Outputs	4 to 20 mA, loop powered
	Loop resistance	0 to 600 ohm
	Supply voltage	20 to 28 VDC at 600 ohm load; 10 to 28 VDC at 0 ohm load

## Hx-68P3 Series Outside Humidity and Temperature Transmitters (Part 2 of 2)

Voltage Output (HE-68P3-0N000) (Three-Wire)	Outputs	0 to 10 V
	Load resistance	10k ohm minimum
	Supply voltage	18 to 35 VDC; 24 VAC $\pm$ 20%, 50/60 Hz
Wire Size	16 AWG (1.5 mm <sup>2</sup> ) maximum	
Electromagnetic Compliance	EN61326-1 Industrial Environment	
Standard Housing Color	White (RAL9003)	
	United States	FCC compliant to CFR 47, Part 15, Subpart B, Class A
	Canada	Under CAN/CSA-CEI/IEC CISPR 22:02, Class A
	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.
	Australia and New Zealand	C-Tick mark

### 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 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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