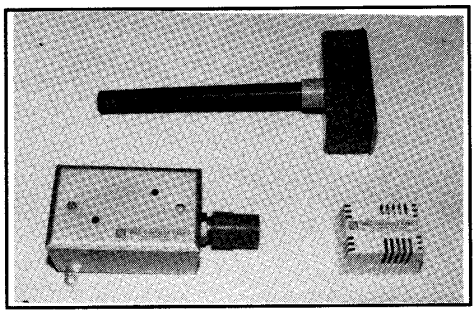
ENGINEERING PRODUCT SPECIFICATION RELEASE

E-11222

WALL, DUCT, OUTSIDE MOUNTING SERIES H-222 (4-20 mA, 2 WIRE LOOP OUTPUT)

DESCRIPTION:

The BEC Model H-222 Humidity Transmitter is an accurate and reliable relative humidity measurement for building automation and control systems with a 4-20 mA, 2 wire analog output signal using 12-30 Vdc unregulated power supply. The 4-20 mA signal is linear and proportional to 0-100% relative humidity. Three enclosures allow selection for transmitting room, duct or outside relative humidity.



THE SENSING ELEMENT

The H-222 Humidity Transmitter utilizes a unique macro resistive polymer sensor. The sensor is made by thermosetting a polymer resin in a quaternary ammonium base. The sensing base then forms part of the crosslink to the polymer resin.

Unlike surface resistive elements, the entire H-222 element acts as the humidity sensor. This method dramatically minimizes sensor contamination effects as well as requisite sensor size.

Electrical resistance of the humidity sensitive polymer resin responds to changes in humidity absorption through ionization of the quaternary ammonium base. The positive relation of the humidity changes and ionization is measured as variations in impedance.

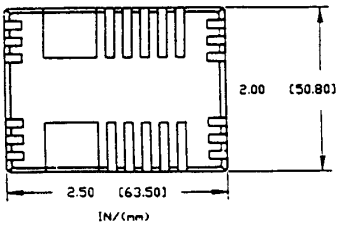
CALIBRATION

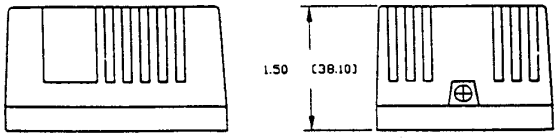
Due to the high sensitivity of relative humidity to temperature, calibration is done in an environmental chamber with the temperatures regulated to within 0.5°F.

Multipoint calibrations are conducted using a variety of chemically pure salts to attain system accuracy. Higher accuricies may be achieved over limited ranges. Documentation is provided outlining testing and calibration results for each H-222 humidity transmitter.

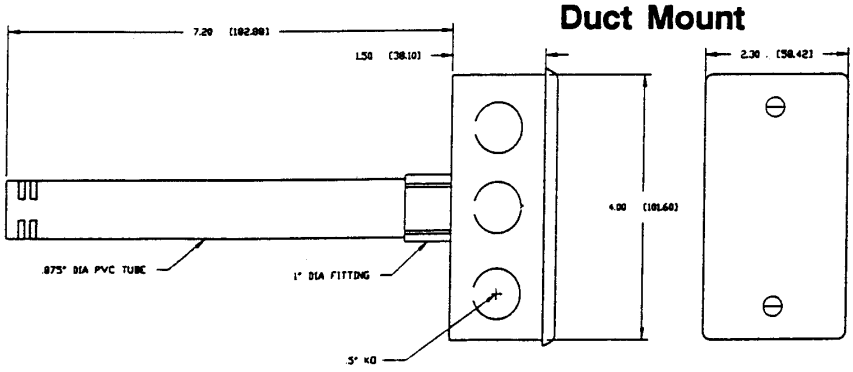
All BEC H-222 relative humidity transmitters are factor calibrated following procedures described in ASTM standard E 104-85. (Standard practice for maintaining constant realative humidity by means of aqueous solutions)

Room Mount





Duct Mount



Ordering Information

H222 - ___ - ___

MOUNTING

A. Wall/Room	
B. Duct	
C. Outside	

ACCURACY (% RH)

±1.0% F.S.
±2.0% F.S.
±3.0% F.S.
±5.0% F.S.

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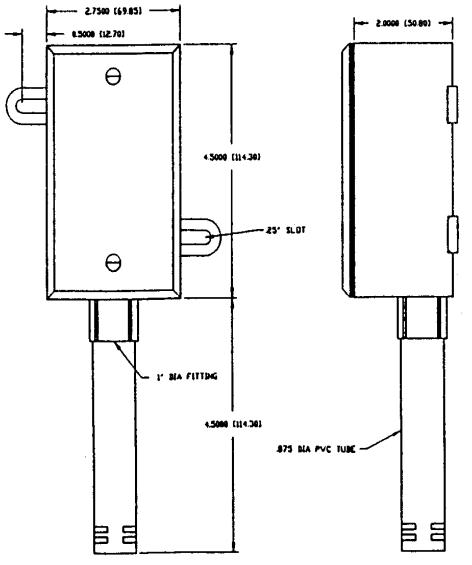
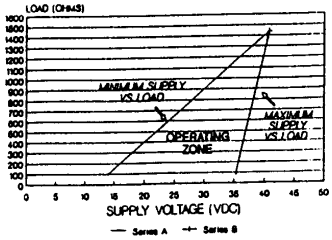
SPECIFICATIONS:

	+/- 1%. +/- 2%	+/-3%	+/- 5%
General			
Accuracy	H222-_-1% + or - 1.0% RH (from 20-95% RH @25 deg C) H222-_-2% + or - 2.0% RH (from 20-95% RH @25 deg C)	+/-3.0% RH (from 30 to 90% RH @25 deg C)	+/-5.0% RH (from 30 to 95% RH @25°C)
Repeatability	+/-0.5% RH from 20-90% RH	+/-0.5% RH from 30-90% RH	+/-0.5% RH from 30 to 90% RH
Stability	+/-1.0% RH drift/year	+/-1.0% RH drift/year	+/-1.0% RH drift/year
Hysteresis	less than 1%	less than 1%	less than 1%
Sensor Interchangeability	+/-3% RH	+/-3% RH	+/-5% RH
Time Constant	45 seconds (typical) from 30 to 80% RH (w/ Airflow=3 m/s)	45 seconds (typical) from 30 to 80% RH (w/ Airflow=3 m/s)	45 seconds (typical) from 30 to 80% RH (w/ Airflow=3 m/s)
Zero Adjustment	+/- 20% RH, non-interactive	+/- 20% RH, non-interactive	+/- 20% RH, non-interactive
High Span Adjustment	+/- 10% RH, non-interactive	+/- 10% RH, non-interactive	+/- 10% RH, non-interactive
Environmental			
Sensor			
Humidity Range	0 to 99% RH	0 to 99% RH	0 to 99% RH
Operating Temp Range	-40 to 170°F, (-39 to 76.7°C)	-40 to 170°F, (-39 to 76.7°C)	-40 to 170°F, (-39 to 76.7°C)
Circuit			
Humidity Range	0 to <99% RH, non-condensing	0 to <99% RH, non-condensing	0 to <99% RH, non-condensing
Operating Temp Range	-40 to 130 deg F, (-39 to 54.4 deg C)	32 to 150 deg F, (0 to 65.5 deg C)	32 to 150°F,DC (0 to 65.5°C)
Storage Temp Range	-65 to 70 deg F, (-53 to 21.1 deg C)	-65 to 70 deg F, (-53 to 21.1 deg C)	-65 to 70°F, (-53 to 21.1°C)
Electrical			
Output Signal	4-20 mA DC, 2-wire	4-20 mA DC, 2-wire	4-20 mA DC, 2-wire
Supply Voltage	12-36 VDC	12.7-35 VDC	12.7-35 VDC
Maximum Load Resistance	(Supply voltage - 12 VDC) / 0.02 Amps	(Supply voltage - 12.7 VDC) / 0.02 Amps	(Supply voltage - 12.7 VDC) / 0.02 Amps
Maximum Supply Voltage	36 VDC + (Load Resistance * .004 Amps)	35 VDC + (Load Resistance * .004 Amps)	35 VDC + (Load Resistance * .004 Amps)
Input Voltage Effect	+/-0.003% RH/Volt for 12-30 VDC	+/-0.003% RH/Volt for 12.7-35 VDC	+/-0.003% RH/Volt for 12.7-35 VDC
Polarity Protection	Reversed polarity diode protected	Reversed polarity diode protected	Reversed polarity diode protected
Wiring Connection	Screw terminals, 14 AWG Max.	Screw terminals, 14 AWG Max.	Screw terminals, 14 AWG Max.

Outside Mount





(Supply Voltage-11.6 VDC) / 20mA
(Loop Resistance * 4 mA) + 35 VDC

Wiring Diagram