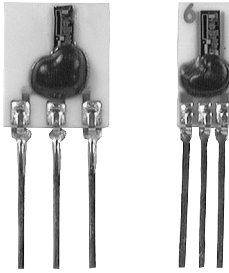


Humidity Sensors

Relative Humidity

HIH Series



FEATURES

- Linear voltage output vs %RH
- Laser trimmed interchangeability
- Low power design
- High accuracy
- Fast response time
- Stable, low drift performance
- Chemically resistant

TYPICAL APPLICATIONS

- Refrigeration
- Drying
- Meteorology
- Battery-powered systems
- OEM assemblies

GENERAL INFORMATION

The HIH-3605 monolithic IC (Integrated Circuit) humidity sensor is designed specifically for high volume OEM (Original Equipment Manufacturer) users. Direct input to a controller or other device is made possible by this sensor's linear voltage output. With a typical current draw of only 200 μ A, the HIH-3605 is ideally suited for low drain, battery powered systems.

The HIH-3605 delivers instrumentation quality RH sensing performance in a low cost, solderable SIP (Single In-line Package). Available in two lead spacing configurations, the RH sensor is a laser trimmed thermoset polymer capacitive sensing element with on-chip integrated signal conditioning.

ORDER GUIDE

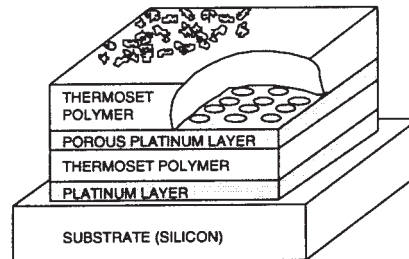
Catalog Listing	Description
HIH-3605-A	Integrated circuit humidity sensor, 0.100 in. lead pitch SIP
HIH-3605-A-CP	Integrated circuit humidity sensor, 0.100 in. lead pitch SIP with calibration and data printout
HIH-3605-B	Integrated circuit humidity sensor, 0.050 in. lead pitch SIP
HIH-3605-B-CP	Integrated circuit humidity sensor, 0.050 in. lead pitch SIP with calibration and data printout.

NIST CALIBRATION

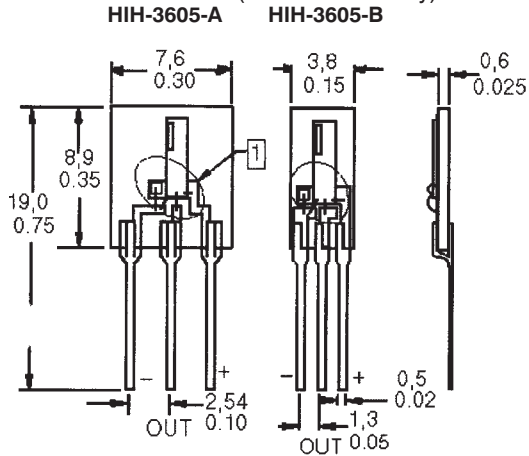
HIH-3605 sensors may be ordered with a NIST calibration and sensor specific data printout. Append "-CP" to the model number to order.

RH SENSOR CONSTRUCTION

Sensor construction consists of a planar capacitor with a second polymer layer to protect against dirt, dust, oils and other hazards.



MOUNTING DIMENSIONS (for reference only)



1 Protective Sealant

CAUTION

PRODUCT DAMAGE

The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation, take normal ESD precautions when handling this product.

Humidity

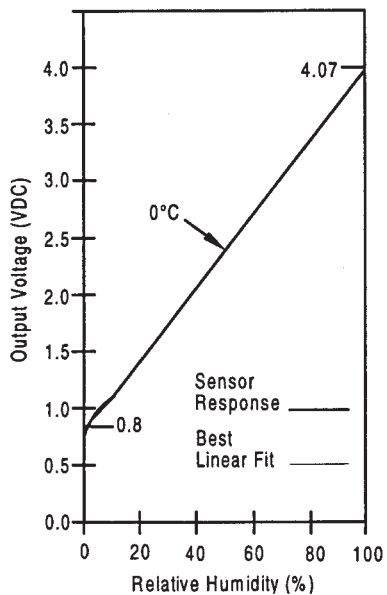
PERFORMANCE SPECIFICATIONS

Parameter	Conditions
RH Accuracy ⁽¹⁾	±2% RH, 0-100% RH non-condensing, 25°C, $V_{supply} = 5$ VDC
RH Interchangeability	±5% RH, 0-60% RH; ±8% @ 90% RH typical
RH Linearity	±0.5% RH typical
RH Hysteresis	±1.2% of RH span maximum
RH Repeatability	±0.5% RH
RH Response Time, 1/e	15 sec in slowly moving air at 25°C
RH Stability	±1% RH typical at 50% RH in 5 years
Power Requirements	
Voltage Supply	4 to 5.8 VDC, sensor calibrated at 5 VDC
Current Supply	200 μ A at 5 VDC, 2 mA typical at 9 VDC
Voltage Output	$V_{out} = V_{supply} (0.0062 (\text{Sensor RH}) + 0.16)$, typical @ 25°C (Data printout provides a similar, but sensor specific, equation at 25°C.)
$V_{supply} = 5$ VDC	0.8 to 3.9 VDC output @ 25°C typical
Drive Limits	Push/pull symmetric; 50 μ A typical, 20 μ A minimum, 100 μ A maximum Turn-on ≤ 0.1 second
Temp. Compensation	True RH = (Sensor RH)/(1.093-0.0012T), T in °F True RH = (Sensor RH)/(1.0546-0.00216T), T in °C
Effect @ 0% RH	±0.007% RH/°C (negligible)
Effect @ 100% RH	-0.22% RH/°C (<1% RH effect typical in occupied space systems above 15°C (59°F))
Humidity Range	
Operating	0 to 100% RH, non-condensing ⁽¹⁾
Storage	0 to 90% RH, non-condensing
Temperature Range	
Operating	-40° to 85°C (-40° to 185°F)
Storage	-51° to 125°C (-60° to 257°F)
Package ⁽²⁾	Three pin solderable ceramic SIP
Handling	Static sensitive diode protected to 15 kV maximum

Notes:

1. Extended exposure to $\geq 90\%$ RH causes a reversible shift of 3% RH.
2. This sensor is light sensitive. For best results, shield the sensor from bright light.

OUTPUT VOLTAGE VS RELATIVE HUMIDITY (at 0°C)



OUTPUT VOLTAGE VS RELATIVE HUMIDITY (at 0°C, 25°C, and 85°C)

