

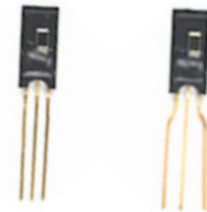


Humidity Sensors

Honeywell

Introduction

- A humidity sensor is a device with an integrated circuit that allows precise relative humidity measurement
- Important specifications of humidity sensors: accuracy, repeatability, interchangeability, cost, stability, size, packaging, condensation recovery, contaminant resistance
- Potential applications
 - HVAC
 - Transport/stationary container refrigeration systems
 - Drying, processing, packaging equipment
 - Medical respiratory/incubator
 - Weather stations/radiosondes
 - Telecommunications cabinets
 - Office automation
 - Drying equipment
 - Air compressors



The HIH-4030/4031 Series' sensing element's multilayer construction is designed to provide enhanced resistance to most application hazards such as wetting, dust, dirt, oils and common environmental chemicals.

Design Factors – Mounting

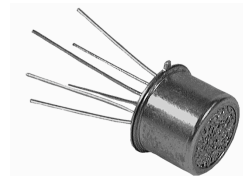
1. SIP (single inline package)
 - Available in .050 or .100 inch lead space
 - Body dimensions .373" (W) x .168" (H) x .080" (T)
 - With or without hydrophobic filter
2. SMD (surface mount device)
 - With or without hydrophobic filter
3. TO-5 can device (multi-radial leads)
 - With or without hydrophobic filter
 - With or without temperature sensing elements (RTD or thermistor)



The HIH-4000 Series is an SIP device designed for cost-effective solutions.



The HIH-4030/4031 Series are supplied in tape and reel packaging for high-volume applications.



The HIH-4602 Series is a TO-5 can device designed for many harsh industrial environments.

Design Factors – Output Type

- Analog voltage output
 - Approximately .031 mV/%RH
 - Typical current draw 200 μ A
- Capacitive output
 - Nominal capacitance at 55 %RH, 330 pF
- Analog voltage output plus temperature
 - Available with NTC thermistor or platinum RTD



The HIH-4000 offers analog voltage output.



The HCH-1000 Series offers capacitive output.



The HIH-4602-A Series offers analog voltage output plus temperature.

Design Factors – Input Voltage Level Characteristics

- Range 4.0 to 5.8 Vdc (analog voltage out)
 - Designed around standard power supplies
- Not applicable (capacitive output sensor)



All HIH Series humidity sensors offer analog voltage out with standard 4.0 to 5.8 Vdc inputs.

Design Factors – Accuracy Requirements

- Available accuracies of HIH Series
 - 0 to 59% RH, $\pm 5\%$ RH (standard)
 - 60 to 100% RH, $\pm 8\%$ RH (standard)
 - $\pm 3.5\%$ RH (BFSL), calibration data required
 - $\pm 3.5\%$ RH interchangeability, calibration data required
- Available accuracies of HCH Series
 - $\pm 2\%$ RH humidity hysteresis
 - 0 to 95% RH, 0.6 pF/%RH sensitivity
 - $\pm 2\%$ RH linearity



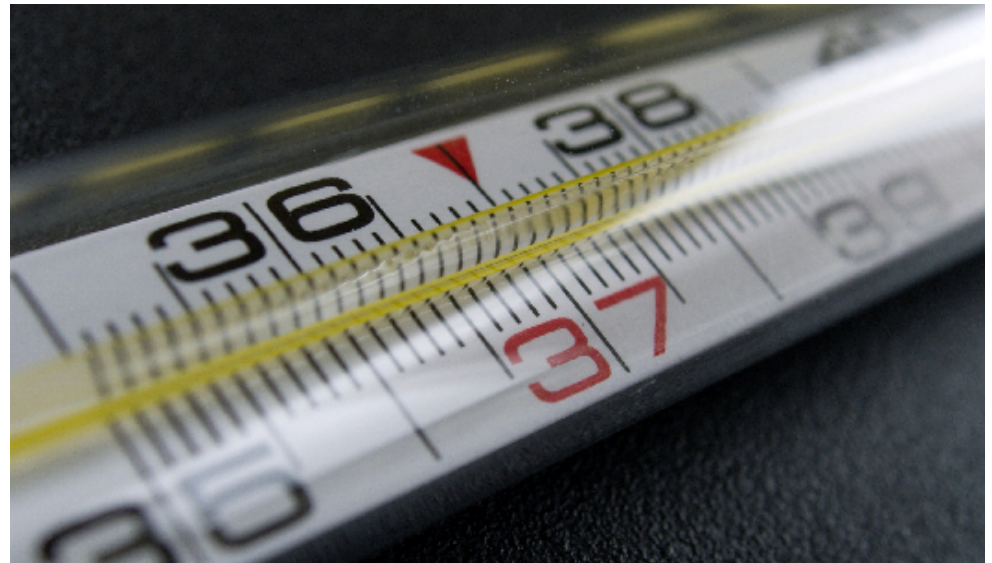
The HCH-1000 Series is Honeywell's lowest cost humidity sensor. It is designed to provide tight tolerances.



The HIH-4000 Series is designed to allow 3.5% RH interchangeability (0 to 59% RH).

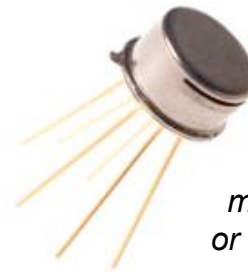
Design Factors – Operating Temperature Limits

- Capacitive output -40 to 120°C
- All other devices -40 to 85°C



Design Factors – Environment

- Humidity sensors can be used in many environments
 - Harsh or industrial
 - HVAC, refrigeration, weather stations, factory floor, telecommunications cabinets
 - Laboratory
 - Medical
 - Equipment
 - Packaging, high-end dryers
 - Air compressors
 - Medical equipment such as an incubators or sleep apnea machines



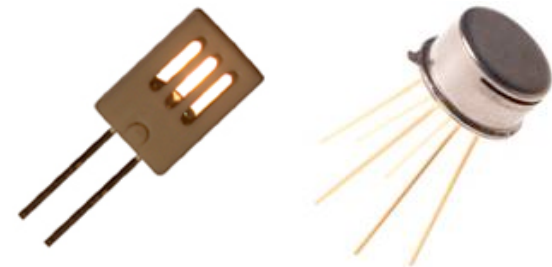
The HIH-4602-L is a capacitive sensor encased in a TO-5 can for maximum protection in many harsh or industrial environments. Available filtered or unfiltered.

Summary

- Humidity sensors offer:
 - Analog or capacitive output
 - Enhanced accuracy
 - Interchangeability that limits the need for customer calibration at the factory
 - Near linear voltage output that provides instrumentation-quality performance
 - Low current draw allows for use in low drain, battery operated systems
 - Low cost capacitive output sensors
 - Tape and reel packaging that allows for use in many high volume pick-and- place manufacturing settings
 - Enhanced resistance against contamination

Engineered Excellence

- Part Innovation
 - A global leader in cost-effective, problem-solving sensors and switches
- Part Engineering
 - Over 50,000 products ranging from humidity, position, speed, pressure, torque and airflow sensors to snap action, limit, toggle, pushbutton and pressure switches
- Total Solutions
 - 75 years of developing solutions to meet millions of customers' needs





Warranty and Remedies

Honeywell

Warranties and Remedies

WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.