Honeywell

MEDICAL AND INDUSTRIAL APPLICATIONS

Honeywell HumidIcon™ Digital Humidity/Temperature Sensors

Solutions

Honeywell HumidIcon™ Digital Humidity/Temperature Sensors are digital output-type relative humidity (RH) and temperature sensors combined in the same package.

They are available in the following accuracies:

±1.7 %RH (HIH9000 Series)
±2.0 %RH (HIH8000 Series)
±3.0 %RH (HIH7000 Series)
±4.5 %RH (HIH6000 Series)
±4.0 %RH (HIH6100 Series)

Honeywell HumidIcon™ sensors provide:

- Industry-leading long-term stability
- True temperature-compensated digital I²C or SPI output
- Industry-leading reliability
- Energy efficiency
- Lowest total cost solution
- Ultra-small package size and options

Potential Industrial Applications

Figures 1 through 6 show a variety of potential industrial applications in which these sensors may be used.

HVAC/R

May be used to provide precise RH and temperature measurement in air conditioning/air movement systems, enthalpy sensing, thermostats, humidifiers/dehumidifiers, and humidistats to maintain occupant comfort and ideal storage humidity/temperature while achieving low energy consumption, supporting system accuracy and warranty requirements, maximizing system uptime, and improving overall system quality (see Figure 1).

AIR COMPRESSORS

May be used to provide precise RH measurement in compressed air lines, allowing the system to remove any condensation; dry compressed air is critical for customer process control measurement (see Figure 2).

WEATHER STATIONS

May be used to provide precise RH and temperature measurement in ground-based and airborne weather stations, allowing real time and highly accurate monitoring/reporting of actual weather conditions (see Figure 3).

TELECOM CABINETS

May be used to provide precise RH and temperature measurement in the telecom cabinet HVAC system; maintaining proper temperature and humidity levels in the cabinet provides maximum system uptime and performance (see Figure 4).

Figure 1. HVAC/R

Figure 2. Air compressors

Figure 3. Weather stations

Figure 4. Telecom cabinets

INDUSTRIAL INCUBATORS/ MICROENVIRONMENTS

May be used to provide optimal temperature and RH levels to support critical processes and experiments, enhancing process efficiency with desired climate conditions (see Figure 5).

GRAIN DRYING SYSTEMS

May be used to help the grain bin storage manager uniformly maintain an optimum level of relative humidity and temperature in the silo (See Figure 6).

Figure 5. Industrial incubators/ microenvironments

Figure 6. Grain drying systems

Potential Medical Applications

Figures 7 and 8 show a variety of potential medical applications in which these sensors may be used.

RESPIRATORY THERAPY

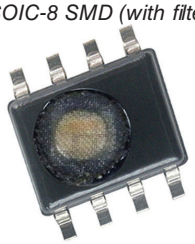
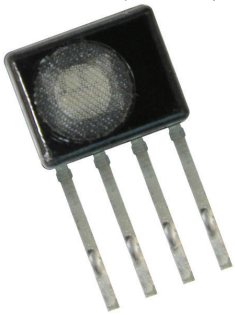
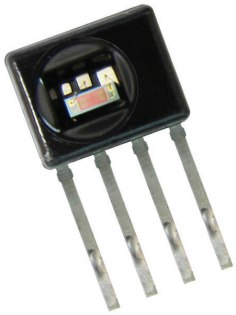
May be used to provide precise RH and temperature measurement in sleep apnea machines and ventilators, enhancing patient comfort, safety and treatment effectiveness with warm and humidified air (see Figure 7).

INCUBATORS/MICROENVIRONMENTS

May be used to provide optimal temperature and RH levels to support critical processes and experiments, enhancing process efficiency with desired climate conditions (see Figure 8).

Figure 7. Respiratory therapy

Figure 8. Incubators/ Microenvironments

Honeywell HumidIcon™ Digital Humidity/ Temperature Sensors	HIH6100, HIH6000, HIH7000, HIH8000, HIH9000 Series Features and Benefits (★ = competitive differentiator)
SOIC-8 SMD (with filter)  *SOIC-8 SMD (without filter)*  *SIP 4 Pin (with filter)*  *SIP 4 Pin (without filter)* 	★ **Industry-leading long term stability (1.2 %RH over five years):** - Minimizes system performance issues - Helps support system uptime by eliminating the need to service or replace the sensor during its application life - Eliminates the need to regularly recalibrate the sensor in the application, which can be inconvenient and costly ★ **Industry-leading reliability (MTTF 9,312,507 HR):** Thermoset-polymer capacitive sensing element's multilayer construction provides resistance to most application hazards such as condensation, dust, dirt, oil, and common environmental chemicals, which help provide industry-leading reliability. ★ **Lowest total cost solution:** Delivers the lowest total cost solution due to the sensor's industry-leading combined humidity/temperature sensor • **Combined humidity and temperature sensor:** Allows the RH measurement to be temperature compensated, and provides a second, standalone temperature sensor output; allows the user to purchase one sensor instead of two ★ **Energy efficient:** - Low supply voltage: Can operate down to 2.3 Vdc, which allows use in low energy and wireless-compatible applications to enhance energy savings and prolong system battery life - Low power consumption: The sensor goes into sleep mode when not taking a measurement within the application, consuming only 1 µA versus 650 µA in full operation in a battery operated system; sleep mode helps maximize battery life, reduces power supply size, and reduces the application's overall weight • **High resolution:** High 14-bit humidity sensor resolution and 14-bit temperature sensor resolution within the application help the user's system detect the smallest relative humidity or temperature change ★ **True, temperature-compensated digital I²C or SPI output:** Typically allows the customer to remove the components associated with signal conditioning from the PCB to free up space and reduce costs associated with those components (e.g., acquisition, inventory, assembly). True, temperature-compensated digital I²C or SPI output often eliminates problems that could occur from having multiple signal conditioning components across the PCB, as well as simplifies integration to the microprocessor, eliminating the need for customer-implemented, complex signal conditioning. ★ **Housing style:** SOIC-8 SMD (Surface Mount Device) or SIP 4 Pin; ultra small size allows for flexibility of use within the application, occupies less space on the PCB, and typically simplifies placement on crowded PCBs or in small devices; industry standard design simplifies design-in • **Filter:** Available with hydrophobic filter and condensation-resistance, allowing for use in many condensing environments, or without hydrophobic filter, non-condensing • **Tape and reel:** Allows for use in high volume, automated pick-and-place manufacturing, eliminating lead misalignment to the PCB and helping the customer to reduce manufacturing costs • **Wide operating temperature range:** Allows for use in many applications • **Optional one or two %RH level alarm outputs:** Provides the ability to monitor whether the RH level has exceeded or fallen below pre-determined and critical levels within the application • **Multi-function ASIC:** Delivers flexibility within the application by lowering or eliminating the risk and cost of OEM calibration • RoHS and WEEE compliant, halogen-free

Find out more

To learn more about Honeywell's sensing and control products, call **1-800-537-6945**, visit **sensing.honeywell.com** or e-mail inquiries to **info.sc@honeywell.com**

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