



SENSING AND CONTROL

Thermal Management Solutions



HONEYWELL. TURNING CHALLENGES INTO SOLUTIONS.

The Honeywell name stands for dependability, a critical trait for products used in medical applications. Yet with Honeywell, quality products are just the beginning. You can count on an experienced technical support team. Even more, because nearly all Honeywell thermal solutions can be customized, you can be assured the device will immediately satisfy the needs of your application.



WHAT'S INSIDE

- 04 Quality Manufacturing
- 05 Customized to your Specifications
- 05 Flexible Heater Assembly Engineering Kit
- 06 Technical Support
- 07 Response to RFQs and Samples
- 08 Anesthesia Machines/Ventilators
- 12 Sleep Apnea Machines
- 14 Dialysis Machines
- 16 Infusion Pumps
- 18 Infant and Laboratory Incubators
- 20 Diagnostic Equipment
- 22 Autoclaves

A WIDE RANGE OF THERMAL MANAGEMENT SOLUTIONS FOR A WIDE RANGE OF MEDICAL APPLICATIONS

	Anesthesia Machines/ Ventilators	Sleep Apnea Machines	Dialysis Machines	Infusion Pumps	Infant and Laboratory Incubators	Diagnostic Equipment	Autoclaves
Humidity Sensors							
HIH6130/6131 Series	S	S			S		
HIH-4000 Series	S	S			S		
HIH-4020/4021 Series	S	S			S		
HIH-4030/4031 Series	S	S			S		
HIH-5030/5031 Series	S	S			S		
HCH-1000 Series	S	S			S		
Flexible Heater Assemblies							
A3100 Series	S	S	S		S	S	S
A3200 Series	S	S	S		S	S	S
A3400 Series	S	S	S	S	S	S	S
C3100 Series	S	S	S		S	S	S
C3200 Series	S	S	S		S	S	S
C3400 Series	S	S	S	S	S	S	S
78000 Series (transparent)				S			
Pre-Packaged Temperature Probes							
500 Series	S	S	S				S
RTD Temperature Sensors							
HEL-775 Series					S		
NTC Thermistors							
192 Series	S	S	S		S	S	
194 Series	S	S	S		S	S	
Thermostats							
2450RC Series		S			S		



BUILT TO WORK. BUILT TO LAST.

Honeywell's manufacturing excellence dates back more than a century and has been proven worldwide. But what really matters is how Honeywell can put that recognized quality to work for you.

First, Honeywell designs and manufactures many of its own products, so the quality can be monitored and maintained throughout the process. In addition, Honeywell's dedicated thermal device engineering team obtains detailed Voice of Customer feedback so that the products Honeywell designs and manufactures are reliable, accurate and easy to install into today's medical devices.





CUSTOMIZED FOR YOUR MEDICAL SPECIFICATIONS

Honeywell offers a vast range of thermal products for medical applications that are immediately available. But unlike other suppliers, that's just the beginning. Honeywell's thermal product line can be customized to meet your exact needs. The days of settling for just what's available are over.



Flexible heater customized for a ventilator exhalation valve cover.

FLEXIBLE HEATER ASSEMBLY ENGINEERING KIT

Honeywell offers a flexible heater assembly engineering kit designed for equipment designers, manufacturing engineers, and technicians. The kit houses many flexible heater assemblies in various shapes and wattages that can be easily removed from the perforated sheet, so you can experiment with the product to help decide what your customized heater solution needs to be. The kit is available in polyamide or silicone, and with or without pressure sensitive adhesive.

The Flexible Heater Assembly Engineering Kit can be ordered by contacting Honeywell's Customer Response Center at **+1 815-235-6847** or at **info.sc@honeywell.com**.

[Catalog listings](#)



TECHNICAL SUPPORT, DAY IN AND DAY OUT.

Honeywell's experienced application engineers are with you from the start.

With their engineering expertise, they'll work with you throughout the product development process to create a customized solution for your application.

Honeywell offers the medical industry the smartest solutions and the savviest engineers ready to solve your problem with expert technical support — all on demand.





FAST RESPONSE TO RFQS AND SAMPLES

and product sample needs is a hallmark of Honeywell. Our experienced engineers understand the importance of timely quotes. And because Honeywell is a manufacturer, you can depend on a quick response to your prototype needs.

U i V i i v V V i i i i i
even custom new products are quoted in one week or less, and product samples are shipped in as fast as five business days. U , i i v V V i i i i i ensure that product samples are delivered in time to support your demanding product development cycle. U i i V i i V i i i i i i v that the product is quoted and sampled quickly.

RESPONSE TIME

Once we receive your request, you can expect the following response time:

RFQ Responses

or less

Sample Delivery

- Humidity Sensors — Typically ship immediately from stock
- UFlexible Heaters — Typically ship within 5 business days of material availability
- UNTC Thermistors — Typically either ship immediately from stock or are built to order, depending on the product ordered
- UThermostats and Temperature Probes — Typically ship within



ANESTHESIA MACHINES/ VENTILATORS

BREATHE EASIER WITH HONEYWELL

Manufacturers of anesthesia machines can trust Honeywell thermal management solutions to effectively and accurately monitor and control the anesthesia delivered to the patient, helping to improve patient safety and comfort. Choose packaged sensors as components for your assemblies, or Honeywell can provide a fully assembled solution you can integrate into your system.

For ventilators, Honeywell's thermal components dry condensation to prevent pooling at the exhalation valve, helping to provide a comfortable breathing environment for the patient. In either case, Honeywell products can be customized to your specifications to meet your exact application needs.



NTC THERMISTORS

192 Series, 194 Series

Anesthesia machines that emit warm, moist air provides the patient with a comfortable breathing environment that helps reduce sore throats caused by breathing cold, dry air. Honeywell discrete thermistor temperature sensors are installed directly into the air stream to monitor the air temperature, and the sensor is coupled to a microcontroller designed to measure air stream temperature and interact with the controller that regulates the temperature of the air stream.

Ventilators that use warm, moist air to provide the patient with a comfortable breathing situation need the temperature of that air to be monitored and controlled. Honeywell discrete thermistor temperature sensors are installed directly into the air stream to monitor the air temperature, and the sensor is coupled to a microcontroller designed to measure air stream temperature and interact with the controller that regulates the temperature of the air stream.

UAccurate Performance — Designed for enhanced accuracy and stability.

UCost Effective — With Honeywell thermistors, the resistance temperature curve interchangeability offers standardization of circuit components and simplification of design and replacement.

UFlexible — Wide selection of housing, resistance, and termination options accommodate air/gas, fluid immersion or surface sensing requirements.

USmall — The compact size of Honeywell thermistors makes them easy to use in confined spaces.



500 Series

500 Series

Flexible — Wide selection of housing, resistance, and termination options accommodate air/gas, fluid immersion or surface sensing requirements.

UCustomizable — Wide selection of housing, resistance, and termination options accommodate air/gas, fluid immersion or surface sensing requirements.



HUMIDITY SENSORS

Honeywell HumidCon™ Digital Humidity/Temperature Sensor HIH6130/6131 Series, HIH-4000 Series, HIH-4020/4021 Series, HIH-4030/4031 Series, HIH-5030/5031 Series, HCH-1000 Series

Moisture introduced into the ventilator must be monitored and controlled. Honeywell's humidity sensors are installed either directly into the air stream or in a parallel branch. The sensor is coupled to a microcontroller designed to measure the humidity of the air stream and to signal the controller that the desired level of moisture is present.

Total Thermal Management Solutions for Ventilator Condensation Applications

If condensation pools at the ventilator's exhalation valve, the airflow measurement at this location may be skewed, resulting in the ventilator delivering an incorrect amount of air to the patient.

A Honeywell flexible heater can be customized to fit inside the ventilator exhalation valve cover, keeping the exhalation cover and valve warm to dry condensation before it can build up.

UImproved Patient Care — Accurate airflow measurement at the exhalation valve helps ensure that the correct airflow is being delivered to the patient.

URemovable Exhalation Valve Cover — Allows the exhalation valve to be sterilized and reused.

UIndustry-Leading Stability — Honeywell HumidCon™ Sensors' stability of 1.2 %RH over 5 years eliminates your need to recalibrate the sensor in the application, minimizing system performance issues and supporting system uptime.

ULowest Total Cost Solution — By combining a humidity and temperature sensor in the same package, Honeywell HumidCon™ Sensors eliminate the need for separate sensors

Accuracy of ±5 %RH eliminates individual sensor testing and calibration, supports system accuracy and warranty requirements, optimizes system uptime, and provides excellent sensor interchangeability.

UEnergy Efficient — Honeywell HumidCon™ Sensors' low 2.3 V compatible applications. Plus, the sleep mode feature reduces power consumption to maximize battery life and reduce both the power supply size and the application's overall weight.

USmall — The compact design lets you reduce the overall size of your PC board and gives you options for use within the application.

UEnhanced Accuracy — Enhanced stability, accuracy and demanding system performance requirements, even in many condensing environments.

UCost Effective — On tape and reel, you can use Honeywell humidity sensors manufacturing.

UDurable — L V filter provide enhanced resistance to condensation and contaminants.

Customized to your Specifications

Honeywell will manufacture many thermal components to the ideal requirements needed for your machine.





3100 Series



3200 Series



3400 Series



FLEXIBLE HEATER ASSEMBLIES

A3100 Series, A3200 Series, A3400 Series, C3100 Series, C3200 Series, C3400 Series

In ventilators, a flexible heater is often required to warm water to vapor to provide the comfortable breathing environment offering variable air temperature that can be used to adjust the vapor/air temperature to improve patient comfort.

Total Thermal Management Solution capabilities. Honeywell can design and manufacture complete heater turnkey assemblies, including supplying a vulcanized or adhered heater assembly to a heat plate, heat sink, mounting bracket or cover.

Uniform Heating

Improves Patient Comfort — Integration of mounting and sensing components allow for the desired vaporization of water, enhancing patient comfort.

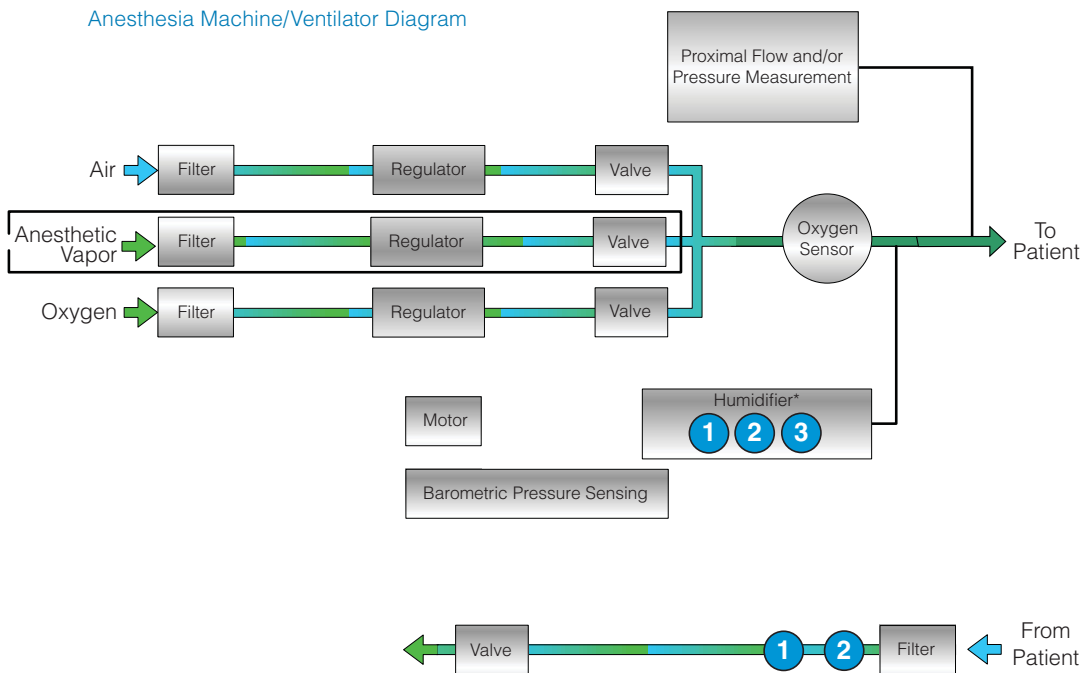
Eases System Qualification

Flexible within the application.

High-Limit Temperature Controls

Stable — A uniform temperature minimizes heat loss.

Anesthesia Machine/Ventilator Diagram



- 1 NTC Thermistors**
192 Series, 194 Series
- or
- Packaged Temperature Probes**
500 Series
- 2 Flexible Heater Assembly**
Custom Configuration
- 3 Humidity Sensors**
HIH Series, HCH Series

* Humidifier may be manufactured by a third party.



Customized to your Specifications

Honeywell will manufacture many thermal components to the ideal requirements needed for your sleep apnea machine's requirements.

SLEEP APNEA MACHINES

CHOOSING HONEYWELL: A DECISION THAT WON'T KEEP YOU UP AT NIGHT

Whether you're working on Continuous Positive Airway Pressure (CPAP) or Bi-Phase Positive Airway Pressure (BiPAP), you need a reliable thermal management solution you need. From the HIH6130/6131 Series to the HCH-1000 Series, Honeywell offers a wide range of sensors to meet your needs.

And, of course, since Honeywell can customize every product to your exact needs, the selection is virtually limitless.

HUMIDITY SENSORS

Honeywell HumidCon™ Digital Humidity/Temperature Sensor HIH6130/6131 Series, HIH-4000 Series, HIH-4020/4021 Series, HIH-4030/4031 Series, HIH-5030/5031 Series, HCH-1000 Series

Honeywell HumidCon™ Digital Humidity/Temperature Sensors provide accurate humidity and temperature measurement to help enable the customer to determine dew point, thereby allowing the system to control the heat and humidity in the air at an optimum therapy level, and most importantly to the patient, enabling an uninterrupted night's sleep.

Industry-Leading Stability — Honeywell HumidCon™ Sensors' stability of 1.2 %RH over 5 years eliminates your need to recalibrate the sensor in the application, minimizing system performance issues and supporting system uptime.

Lowest Total Cost Solution — By combining a humidity and temperature sensor in the same package, Honeywell HumidCon™ Sensors eliminate the need for separate sensors in certain applications, reducing system cost and simplifying assembly.

Energy Efficient — Honeywell HumidCon™ Sensors' low 2.3 Vdc operating voltage and low power consumption reduce power supply size and the application's overall weight.

Small — The compact design lets you reduce the overall size of your PCB, providing you with options for use within the application.

Enhanced Accuracy — The enhanced stability, accuracy and precision of Honeywell HumidCon™ Sensors meet the most demanding system performance requirements, even in many condensing environments.

Cost Effective — Available in both through-hole and surface-mount packages, you can use Honeywell humidity sensors in a wide range of applications.

Durable — Honeywell HumidCon™ Sensors provide enhanced resistance to condensation and contaminants.



HIH6130/6131 Series, HIH-4000 Series, HIH-4020/4021 Series, HIH-4030/4031 Series, HIH-5030/5031 Series, HCH-1000 Series