

Potential Medical Applications Overview



Potential Application	Honeywell Product	Product Function in Application	Customer Benefits
RESPIRATORY			
Anesthesia Delivery Machines	Airflow Sensor	measures the flow of air, oxygen and nitrous oxide so that the specified mixture, as set by the doctor, is delivered to the patient	improves patient comfort, eases patient breathing, reliable
	Hall-Effect Magnetic Position Sensor	provides enhanced output accuracy for smooth motor control that reduces noise and vibration in motor assembly fan systems	quiet, cost-effective, efficient, effective, accurate
	Pressure Sensor – Silicon		
	Pressure Sensor – Stainless Steel Media Isolated	measures air and oxygen pressure so that the pressure doesn't exceed a desired level	stable, easy to use, accurate, improves patient safety, easy to design in, compatible
	Thermistor	monitors and controls the air temperature	flexible, cost-effective, small size
Oxygen Concentrators	Airflow Sensor	detects ultra-low levels at 0.1 cm ³ to detect when the patient exhales and when the system should reduce airflow	improves patient comfort, eases patient breathing, quiet, portable, reliable
	Hour Meter	tracks machine usage in hours and tenths of an hour via a readily-visible readout	accurate, reliable, readable, rugged
	Pressure Sensor – Silicon	detects when the patient begins to inhale so that oxygen can then be delivered efficiently and effectively	stable, sensitive, accurate, reliable, cost-effective, efficient
	Pressure Sensor – Stainless Steel Media Isolated	senses pressure from the surge tank, providing feedback to the compressor which allows the compressor to maintain the desired pressure level	sensitive, accurate, reliable, cost-effective, efficient
	Pressure Switch	acts as a high pressure warning, alerting the user by activating an indicator light in the pressure exceeds a specified limit	accurate, reliable, extended life, one-stop shopping
Sleep Apnea Machines	Airflow Sensor	monitors the patient's breathing and sends an output that reduces the flow of the machine's internal blower fan when the patient starts to exhale	improves patient comfort, eases patient breathing, quiet, portable, reliable
	Flexible Heater	vaporizes water so that a comfortable breathing environment can be provided	flexible, customizable, improves patient comfort, improves patient safety, stable, easy to implement
	Hall-Effect Magnetic Position Sensor	provides enhanced output accuracy for smooth motor control that reduces noise and vibration in motor assembly fan systems	quiet, cost-effective, improves patient safety, efficient, effective, accurate
	Humidity Sensor	monitors the amount of humidified air to provide adequate air moisture to the patient	accurate, flexible, cost-effective, durable
	Pressure Sensor – Silicon	monitors the pressure of air that is delivered to the patient	stable, reliable, efficient, accurate, sensitive
	Thermistor and Pre-Packaged Temperature Probe	provide warm, moist air	accurate, effective design, flexible
Ventilators	Airflow Sensor	measures the flow of air, oxygen and nitrous oxide so that the specified mixture, as set by the doctor, is delivered to the patient	improves patient comfort, eases patient breathing, reliable
	Flexible Heater	heats water to a vapor and introduces it into the air stream	flexible, customizable, improves patient comfort and safety, stable, easy to implement
	Hall-Effect Magnetic Position Sensor	provides enhanced output accuracy for smooth motor control that reduces noise and vibration in motor assembly fan systems	quiet, cost-effective, improves patient safety, efficient, effective, accurate
	Humidity Sensor	helps deliver warm and moist air by being coupled to a microcontroller designed to measure the humidity of the air stream and signal the controller that the desired level of moisture is present	accurate, flexible, cost-effective, durable
	Pressure Sensor – Silicon	measures air and oxygen pressure so that the pressure doesn't exceed a desired level	stable, easy to use, accurate, improves patient safety, easy to design in
	Pressure Sensor – Stainless Steel Media Isolated	provides a sensing solution when high pressure, steel pressure port interface and/or corrosive media are used	easy to use, accurate, improves patient safety, easy to design in
	Thermistor	monitors and controls the air temperature	flexible, cost-effective, small
KIDNEY DIALYSIS MACHINES			
Kidney Dialysis Machines	Flexible Heater	provides controlled heat for blood or dialysate warming to body temperature prior to re-entry into the body	flexible, customizable, enhances patient comfort, improves patient safety, stable, simplifies system qualification
	Force Sensor	a) detects the presence or absence of a fresh dialysate cartridge before the machine can be used; b) monitors the flexible tubing pressure of the dialysate to detect that the pressure doesn't exceed a specified level; c) monitors the weight of the dialysate to detect whether there is a specified amount of dialysate in the fresh dialysate cartridge	reliable, sensitive, stable
	Hall-Effect Magnetic Position Sensor	provides reliable, accurate output for smooth motor control that reduces noise and vibration in the machine's motor assembly and improves its efficiency	quiet, cost-effective, energy-efficient, accurate
	Infrared Sensor	used with an encoder wheel on the pump shaft to count shaft rotation	reliable, works in contaminated environments, enables maximum position resolution

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Kidney Dialysis Machines (Continued)	Pressure Sensor – Silicon	obtains a direct, in-line continuous dialysate and venous pressure measurement in the dialysis membrane without interrupting flow	stable, efficient, accurate, easy to design in, small, extended life
	Pressure Sensor – Stainless Steel Media Isolated	when located in a Fresh Dialysate Cartridge, may be used to monitor pressure in the flexible tubing that carries blood or dialysate to provide continuous feedback of line pressures and pump control	
	Thermistor	provides temperature measurement for enhanced control of the permeation rate across the dialysis membrane	allows application flexibility, cost-effective, small
INFUSION AND INSULIN PUMPS			
Infusion and Insulin Pumps	Flexible Heater	conforms to the infusion pump's surface that requires heating, allowing for the capability of maintaining specific temperatures at predetermined levels	allows application flexibility, customizable, improves patient safety, stable, simplifies system qualification
	Force Sensor	provides an occlusion detector to detect blockage in the infusion or insulin pump's tube that delivers the medication to the patient	sensitive, stable, reliable, easy to use, portable
	Hall-Effect Magnetic Position Sensor	provides reliable, accurate output for smooth motor control that reduces noise and vibration in the pump's motor assembly and improves its efficiency	quiet, cost-effective, energy-efficient, accurate
	Infrared Sensor	used with an encoder wheel on the pump shaft to count shaft rotation	reliable, works in contaminated environments, enables maximum position resolution
	Pressure Sensor	monitor and control the flow of fluid	accurate, easy to design in, stable
HOSPITAL DIAGNOSTICS			
Gas Chromatography	Airflow Sensor	regulates the flow rate to eliminate outgasing	reliable, reduces risk of contamination, accurate, stable, easy to implement
Hematology Analyzers	Infrared Sensor	used with an encoder wheel on the pump shaft to count shaft rotation	reliable, operates in contaminated environments, enables maximum position resolution
Blood Analyzers	Pressure Sensor – Silicon	regulates pressure in the pump system to draw and transport the samples	accurate, reliable, stable, repeatable, contaminant and corrosion resistant, product availability
	Thermistor	monitors the temperature of the chamber, diffusion lamps and oil-cooled motors to prevent overheating	allows application flexibility, cost-effective, small
PATIENT MONITORING SYSTEMS			
Respiratory Monitoring	Airflow Sensor	monitors patient's respiratory function	improves measurement sensitivity and accuracy, portable, reliable
Respiratory Monitoring and Blood Pressure Monitoring	Pressure Sensor – Silicon	measures air and oxygen pressure	stable, accurate, fast response time, easy to design in, portable
Blood Glucose Monitoring	Pressure Sensor – Silicon	controls the pumps used to draw the blood and return it to the patient so that the pressure does not rupture the veins	improves patient safety with enhanced stability and low drift, fast response time, easy to design in, portable
Temperature Monitoring	Thermistor	monitors patient temperature	allows application flexibility, cost-effective, small
HOSPITAL HARDWARE			
Medication Dispensing Cabinets	Hall-Effect Magnetic Position Sensor	enables remote locking and unlocking of medication dispensing cabinet drawers	allows for enhanced security, minimizes medication dispensing errors, reliable, cost-effective, energy-efficient, size reduction, on-time delivery
Medical Incubators	Humidity Sensor	monitors the medical incubator system to maintain a desired level of humidification in the chamber with accurate dew-point and absolute humidity/moisture measurement	stable, reliable, allows application flexibility, cost-effective, durable
	Thermistor	monitors temperature	allows application flexibility, cost effective, small
Blood Pressure Monitors	Pressure Sensor – Silicon	measures blood pressure	portable, stable, accurate
Hospital Beds	MICRO SWITCH™ Position Switch	determines minimum and maximum position of electrically adjustable hospital beds	accurate, repeatable, durable, effective design, small, light weight
	Pressure Sensor – Silicon	measures air pressure and controls the inflation and deflation of the mattress air columns to prevent bedridden patients from developing bedsores	accurate, reliable, stable
SURGICAL INSTRUMENTS			
Surgical Fluid Management Systems	Force Sensors	can help regulate the pressure at the pump head of a fluid management system, and as a back-up safety device to the direct pressure measurement at the joint	rugged design, stable, reliable, portable and energy-efficient
	Pressure Sensor – Silicon	sense pressure directly at the joint site during arthroscopic surgery	accurate, improves patient safety, easy to design in
DENTAL EQUIPMENT			
Dental Imaging Systems and Dental Chairs	Hall-Effect Magnetic Position Sensor	provides accurate motion control and positioning of the dental imaging system	accurate, energy-efficient, fast response, reliable
Dental Imaging Systems	Infrared Sensor	obtains dental images	reliable, works in contaminated environments, enables maximum position resolution
Pressure-Operated Dental Instruments (e.g., drills, water sprays, air blasters)	Pressure Sensor – Silicon	keeps the water flow constant and at an adjusted level, allowing smooth operation of the dental instrument	accurate, reliable, stable, water-resistant, contaminant-resistant

While Honeywell provides application assistance personally, through its literature and the Honeywell Web site, it is up to the customer to determine the suitability of the product in the application.