

SENSORS AND SWITCHES SOLUTIONS FOR MEDICAL APPLICATIONS

PRESSURE SENSORS - BOARD MOUNT



PRESSURE TRANSDUCERS - HEAVY DUTY



SANITARY PRESSURE TRANSDUCERS



FORCE SENSORS AND LOAD CELLS



AIRFLOW SENSORS



FLEXIBLE HEATERS



GAS SENSORS



HUMIDITY SENSORS



MAGNETIC SENSORS



SUBMINIATURE BASIC SWITCHES



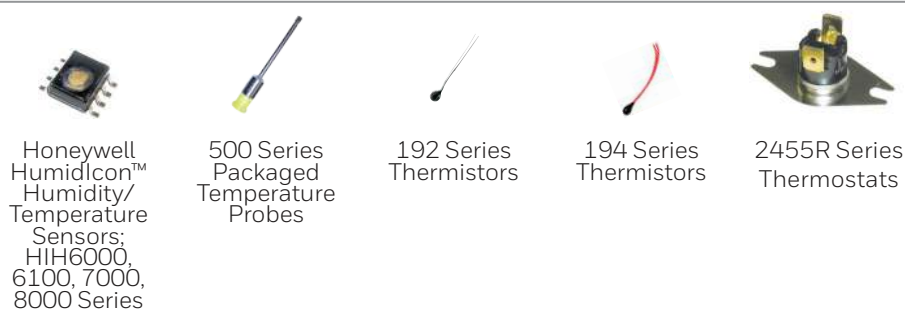
PRESSURE SWITCHES



POSITION SENSORS - SMART



TEMPERATURE SENSORS



BARCODE SCAN ENGINES, MODULES AND SOFTWARE



PRESSURE, AIRFLOW AND FORCE SENSOR RANGES

PRESSURE SENSORS - BOARD MOUNT	
TruStability™ RSC, HSC, SSC, TSC Series	±1.6 mbar to ±10 bar ±160 Pa to ±1 MPa
Basic ABP, TBP Series	±60 mbar to ±10 bar ±6 kPa to ±1 MPa
Basic ABP2 Series	±5 mbar to ±17 bar ±50Pa to ±1.7 MPa
MicroPressure MPR Series	60 mbar to 2.5 bar 6 kPa to 250 kPa
26PC Series	1 psi to 250 psi (SIP, DIP), 1 psi to 15 psi (SMT)
PRESSURE TRANSDUCERS - HEAVY DUTY	
13 mm Series	0 psi to 500 psi through 0 psi to 5000 psi
19 mm Series	0 psi to 3 psi through 0 psi to 500 psi
MIP Series	1 bar to 60 bar 15 psi to 870 psi
MLH Series	0 psi to 50 psi through 0 psi to 8000 psi
FP5000 Series	10 in-H ₂ O [0.36 psi] up to 5000 psi
SANITARY PRESSURE TRANSDUCERS	
CIP (Clean in Place) Series	10 psi to 600 psi
FORCE SENSORS AND LOAD CELLS	
MicroForce FMA Series	5 N to 25 N
FSA Series	5 N to 25 N
FSG Series, FSS Series	5 N to 20 N
Basic TBF Series	1 bar to 10 bar 100 kPa to 1 MPa
1865 Series	5 psi to 30 psi
Model 11 and Model 31	150 g up to 1000 lb
AIRFLOW SENSORS	
HAF Series-High Accuracy	±50 SCCM to ±750 SCCM, 10 SLPM to 300 SLPM
AWM40000 Series	±25.0 SCCM, 1.0 SLPM, 6.0 SLPM
AWM700 Series	300 SLPM
AWM90000 Series	±200 SCCM, ±5.0 mbar SCCM [2.0 in-H ₂ O]

Anesthesia Delivery Machines

- Airflow sensors measure air, oxygen and nitrous oxide flow
- Magnetic sensors enable smooth motor control that reduces noise/vibration
- Pressure sensors may be used to meter and measure the anesthesia gas so that pressure doesn't exceed the desired level
- Thermistors enable accurate air temperature control

Dental Equipment

- Magnetic sensors enable accurate motion control and positioning of the dental imaging system and promote energy efficiency in hand-held, battery-operated dental equipment
- Pressure sensors keep water flow constant in dental instruments, allowing smooth operation, as well as control all the pneumatic tools required

Hospital Diagnostics

- Airflow sensors specifically designed for gas chromatography eliminate sensor outgassing
- Barcode scan engine or barcode decoding software obtain positive patient confirmation, and often a brief code of the physician's order, before sampling (blood/chemistry analyzer, chromatography, cytometry/cellular analysis, molecular diagnostics/PCR)
- Pressure sensors in blood analyzer pump systems regulate pressure to draw/transport samples and control the pressure excerpted on the blood cells to allow only one cell past the detector at a time
- Pressure sensors in gas chromatography equipment sense and control gas stream pressure to maintain a constant, precise flow
- Thermistors in blood analyzers monitor chamber, diffusion lamp and motor temperature to prevent overheating

Hospital Hardware

- Embedded barcode reader or barcode scanning software enables the ability to scan labels for positive patient confirmation and clinician information
- Humidity sensors maintain temperature and humidity levels in incubators and microenvironments
- Magnetic sensors enable locking/unlocking of medication dispensing cabinets
- Magnetic sensors in exercise equipment may be used as an emergency stop switch, to count RPM and to determine incline position
- Magnetic sensors or basic switches in hospital beds determine bed adjustment beginning and end positions
- Position sensors (SMART Arc) in hospital beds monitor backrest elevation which helps ensure the proper angle is maintained
- Pressure sensors control a hospital bed's air columns to help prevent patients from developing bedsores
- Pressure sensors measure pressure in blood pressure monitors
- Pressure switches in hospital gas distribution systems indicate to a control panel that the main pressure tank is empty and needs to be replaced
- Thermistors monitor the incubator system's temperature
- Thermostats in patient warmers control or limit temperature

Hospital Rooms

- Pressure sensors monitor airflow rates to provide continuous positive or negative air pressure to prevent contamination

Infusion, Insulin, Syringe Pumps

- Barcode scan engines and software help ensure the right treatment is administered to the right patient by reading the barcodes on the IV bag and on the patient wrist band
- Force sensors detect blockage in the pump's tube that delivers medication
- Magnetic sensors enable smooth motor control that reduces noise and vibration (infusion, insulin pumps only)
- Pressure sensors monitor and control the flow of fluid
- Subminiature load cells monitor the weight of the IV bag

Kidney Dialysis Machines

- Force sensors detect the presence/absence/weight of a dialysate cartridge and monitor flexible tubing pressure
- Magnetic sensors enable smooth motor control that reduces noise/vibration
- Pressure sensors obtain dialysate and venous pressure measurements without interrupting flow
- Barcode scan engines and software help ensure the right treatment is administered to the right patient by reading the barcodes on the IV bag and on the patient wrist band
- Pressure sensors monitor pressure in the cartridge's flexible tubing
- Thermistors provide enhanced temperature control of the permeation rate across the dialysis membrane
- Thermostats control or limit temperature
- Thermostats in peritoneal dialysis machines may be used for heater tray control
- Basic switches detect presence of covers, doors and cassettes to ensure safety in operation

For more information

Honeywell Advanced Sensing Technologies services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing or the nearest Authorized Distributor, visit sps.honeywell.com/ast or call:

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Oxygen Concentrators

- Airflow sensors detect ultra-low airflow levels that sense when the patient exhales for efficient oxygen delivery
- Oxygen sensors measure and control oxygen concentration level of the air mixture delivered to the patient
- Pressure sensors detect when the patient begins to inhale for efficient oxygen delivery
- Pressure sensors sense surge tank pressure for accurate compressor pressure levels
- Pressure switches alert the user when the pressure exceeds a specified limit

Patient Monitoring Systems

- Barcode scanner software enables the ability to track the patient via a mobile device
- Oxygen sensors measure oxygen concentration level of the air mixture delivered to the patient
- Pressure sensors in nebulizers carefully monitor airflow rates so that the specified amount of medicine, amid a humid environment, is delivered to the patient
- Pressure sensors in spirometers measure in/out patient airflow
- Pressure sensors monitor blood pressure
- Thermistors in temperature monitoring equipment monitor temperature

Sleep Apnea Machines

- Airflow sensors monitor breathing and send an output to reduce airflow when the patient exhales
- Bimetallic commercial thermostats on-board (stand-alone) devices on flexible heaters control temperature without adding associated software or electronics
- Humidity sensors monitor the air to provide adequate moisture
- Magnetic sensors enable smooth motor control that reduces noise/vibration
- Pressure sensors monitor the delivered air pressure
- Thermistors and pre-packaged temperature probes provide warm, moist air

Spirometers

- Airflow sensors measure the airflow from the patient upon exhalation
- Pressure sensors measure in/out patient airflow

Surgical Equipment

- Force sensors regulate a fluid management system's pump head pressure
- Position sensors (SMART Arc) and force sensors in robotically assisted surgery equipment control robotic arms that hold the articulated instrument tips
- Pressure sensors (board mount and heavy duty) in surgical fluid management systems sense joint site pressure during arthroscopic surgery

Ventilators

- Airflow sensors measure air and oxygen flow so the correct amount is delivered to the patient
- Barcode scan engines and software enable automated, more accurate and faster tracking of patient and caregiver IDs and ensure the right medication and equipment match the right patient
- Basic switches detect doors and covers to ensure they have been properly closed before operation
- Humidity sensors deliver warm, moist air to the patient
- Magnetic sensors enable smooth motor control, reducing noise/vibration
- Oxygen sensors measure and control oxygen concentration level of the air mixture delivered to the patient
- Pressure sensors detect when the breath changes from inhalation to exhalation to measure in/out patient airflow
- Pressure sensors (heavy duty) measure inlet pressure from the hospital's air and oxygen supplies
- Pressure transducers are used to test the ventilator's air and oxygen valves
- Thermistors monitor and control air temperature

Consumer Medical (Pressure Sensors)

- Measure pressure in non-invasive blood pressure monitoring
- Monitor pressure applied to the wound via the suction system in negative-pressure wound therapy
- Measure partial vacuum on the suction side of miniature pumps, such as breast pumps, to provide continuous suction pressure monitoring
- Monitor water level in CPAP water tanks
- Provide pressure measurement in medical wearables