

SENSORS AND SWITCHES SOLUTIONS FOR MEDICAL APPLICATIONS

PRESSURE SENSORS - BOARD MOUNT



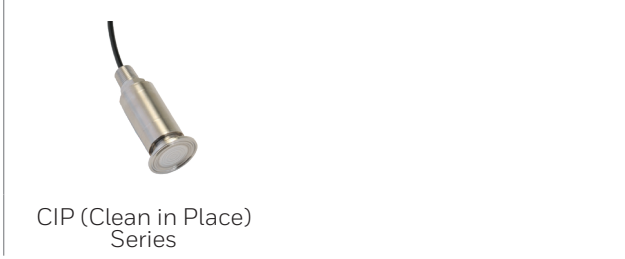
TruStability™ RSC Series TruStability™ HSC Series TruStability™ SSC Series TruStability™ TSC Series Basic ABP2 Series Basic ABP Series Basic TBP Series MicroPressure MPR Series 26PC Series

PRESSURE TRANSDUCERS - HEAVY DUTY



13 mm Series 19 mm Series MIP Series MLH Series FP5000 Series

SANITARY PRESSURE TRANSDUCERS



CIP (Clean in Place) Series

FORCE SENSORS AND LOAD CELLS



MicroForce FMA Series FSA Series FSG Series FSS Series Basic TBF Series 1865 Series Model 11 Model 31

AIRFLOW SENSORS



Honeywell Zephyr™ HAF Series (High Flow) Honeywell Zephyr™ HAF Series (Low Flow) AWM40000 Series AWM700 Series AWM90000 Series

FLEXIBLE HEATERS



3100 Series, 3200 Series, 3400 Series

GAS SENSORS



Oxygen Sensors, OOMLF Series

HUMIDITY SENSORS



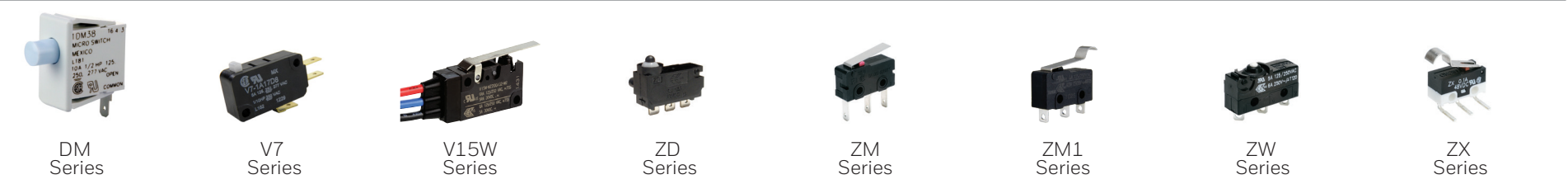
Honeywell HumidCon™ Humidity/Temperature Sensors: HIH6000, 6100, 7000, 8000 Series HIH-5030/5031 Series (3 V) HIH-4000 Series (5 V) HIH-4602 Series

MAGNETIC SENSORS



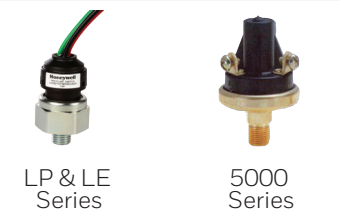
SOT-23 flat TO-92-style SOT-89B SR16 Series, SR17 Series

SUBMINIATURE BASIC SWITCHES



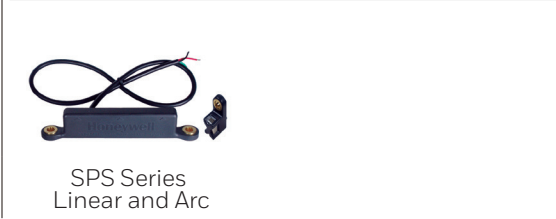
DM Series V7 Series V15W Series ZD Series ZM Series ZM1 Series ZW Series ZX Series

PRESSURE SWITCHES



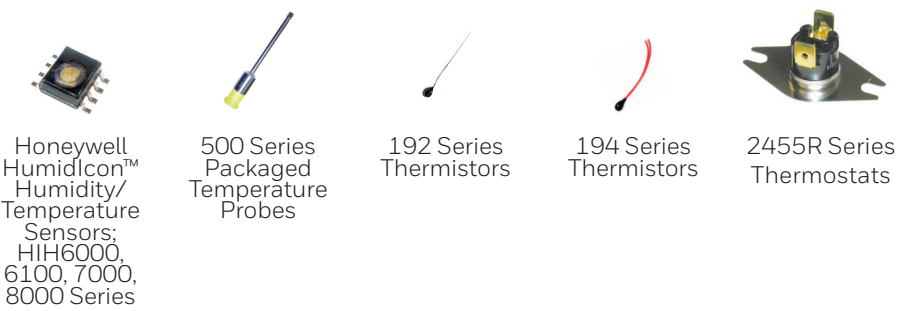
LP & LE Series 5000 Series

POSITION SENSORS - SMART



SPS Series Linear and Arc

TEMPERATURE SENSORS



Honeywell HumidCon™ Humidity/Temperature Sensors: HIH6000, 6100, 7000, 8000 Series 500 Series Packaged Temperature Probes 192 Series Thermistors 194 Series Thermistors 2455R Series Thermostats

BARCODE SCAN ENGINES, MODULES AND SOFTWARE



N670X Series 2D Scan Engines CM Series 2D Imager Modules SwiftDecoder™ 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 ±25 bar ±50Pa to ±2.5 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 Sensing and Internet of Things services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing or the nearest Authorized Distributor, visit sensing.honeywell.com or call:

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Sensing and Internet of Things

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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