
CONTROLLING
THE FUTURE
WITH
TECHNOLOGY
Honeywell

THE CHART DETAILS VARIOUS HONEYWELL PRODUCT LINES THAT CAN BE USED TO SUPPORT HVAC APPLICATIONS.

✱= FOCUS PRODUCTS

	Pressure		Environmental				Industrial		Magnetics		Transportation		
HVAC Categories	✱ Board-Mount Pressure Sensors	✱ Heavy-Duty Pressure Sensors	✱ Airflow Sensors	✱ Gas Sensors	✱ Humidity Sensors	✱ Particle Sensors	✱ Basic Switches	✱ Temperature Sensors and Thermostats	Motor Commutation or Speed	Position	Toggle Switches	Rocker and Pushbutton Switches	Pressure Switches
Demand Control Ventilation	✓			✓	✓	✓	✓	✓	✓	✓		✓	
Variable Air Volume Control	✓		✓		✓			✓	✓	✓			
Air Purification/ Filter Monitoring	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	
Air Conditioning		✓			✓				✓	✓		✓	
Heating System: Residential	✓								✓	✓		✓	
Heating System: Commercial	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓
Refrigeration		✓		✓	✓		✓	✓	✓	✓	✓	✓	✓

✓ Primary sensor/switch used within application (key design consideration for OEM)

✓ Secondary sensor/switch used within application (not a key design consideration)

DEMAND CONTROL VENTILATION

An efficient ventilation system responds to real-time data to optimize the recirculation of air, thereby, **improving air quality and reducing HVAC running costs**. Demand control ventilator allows buildings to meet the needs of growing trends which calll for more environmentally friendly buildings with better indoor air quality.

CO_2 Sensor

- Adjusts ventilation rates as sensor is highly sensitive to carbon dioxide in the air
- Senses CO_2 in demand control & energy recovery ventilation

Humidity Sensor

- Can be used to measure humidity throughout the HVAC system in order to maintain occupant comfort, as well as to prevent condensation

Particle Sensor

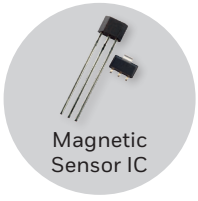
- Enables the ability to more accurately and cost-effectively monitor or control environmental particulate

CO Sensor

- High quality CO detection in residential or commercial environments
- Helps control indoor air quality

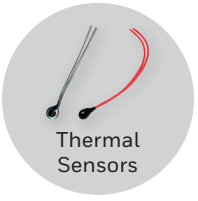
Board Mount Pressure

- Measures differential pressure for static duct pressure and indoor air quality



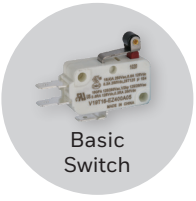
Magnetic Sensor IC

- Enable efficient control of the electric motors that drive fans, blowers and pumps



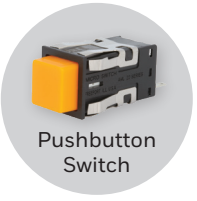
Thermal Sensors

- Used in HVAC temperature controllers and for thermostat control



Basic Switch

- Provides high-performance mechanical switching on direct-acting damper actuators



Pushbutton Switch

- Activates or deactivates an element or the entire ventilation system

VARIABLE AIR CONTROL VOLUME

Controls airflow into a room or duct while sensors enable monitor valves to control the air volume to **maximize energy efficiency.** Sensors are critical to identifying the system is working as intended and at its best.

Board Mount Pressure

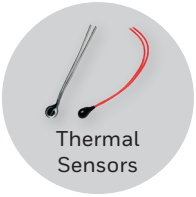
- Used to monitor differential pressure for variable air volume and static duct pressure
- Ensures proper air flow
- Balances the airflow in complex HVAC systems

Airflow Sensor

- Used to monitor mass airflow for VAV controllers and in-line transmitters
- Balances the airflow in complex HVAC systems

Humidity Sensor

- Maintains occupant comfort for desired humidity and temperature via precise relative humidity (RH) and temperature measurement



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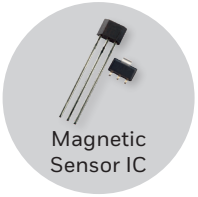


Magnetic Sensor IC

- Helps brushless dc motors run smoothly, quietly and efficiently

AIR PURIFICATION & FILTER MONITORING

Recent trends point to an **increase importance in having cleaner and healthier air** leading to an increase in the need for air purification and filter monitoring.

Board Mount Pressure

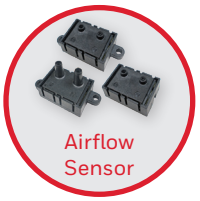
- Used to monitor differential pressure for clogged filter detection and indoor air quality

CO_2 Sensor

- Used to monitor ventilation quality and emission levels by measuring the levels of carbon dioxide

CO Sensor

- Used to monitor the CO levels for optimal air quality. CO is a toxic, odorless gas that needs a sensor to be detected



Airflow Sensor

- Used to monitor mass airflow for VAV controllers and in-line transmitters

Humidity Sensor

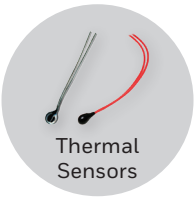
- Maintain occupant comfort for desired humidity and temperature

Particle Sensor

- Enables the ability to more accurately and cost-effectively monitor or control environmental particulate

Basic Switch

- Used as air-proving switching assemblies, along with mechanical switching for valve position detection



Thermal Sensors

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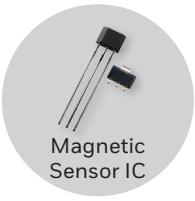
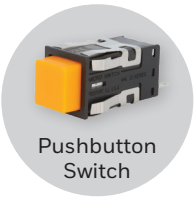


Magnetic Sensor IC

- Provides motor and fan control, position sensing, and speed sensing for moving parts



Pushbutton Switch

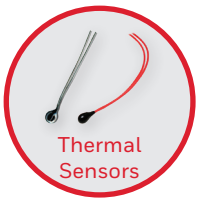
- Activates or deactivates an element or the entire ventilation system

AIR CONDITIONING

A centralised cooling system that has a sophisticated ducting system that enables the cold air to be distributed throughout a building.

Heavy-Duty Pressure

- Monitors system performance for proper environment control of compressure inlet and outlet pressure



Thermal Sensors

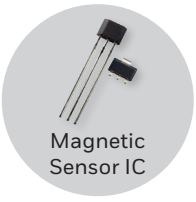
- Used in HVAC temperature controllers and for thermostat control

CO Sensor

- High quality CO detection in residential or commercial environments

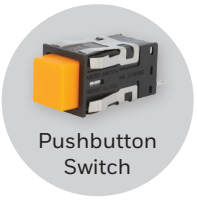
Humidity Sensor

- Maintain occupant comfort for desired humidity and temperature



Magnetic Sensor IC

- Enable efficient control of the electric motors that drive fans, blowers and pumps



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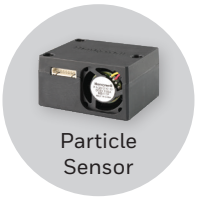


Particle Sensor

- Enables the ability to more accurately and cost-effectively monitor or control environmental particulate

HEATING SYSTEM COMMERCIAL

Boilers uses combustion to heat water and air, which is sent through pipes or vents throughout a building to provide heat. The biggest needs for boilers are to be energy efficient and safe. Honeywell sensors provide **efficiency while also detecting faults and leaks.**

Board Mount Pressure

- Used to control airflow to balance airflow with maintaining a consistent temperature through the building

Heavy-Duty Pressure

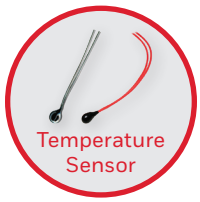
- Used to monitor steam pressure (overpressure or low pressure indication) in boilers to prevent a potentially explosive situation

Limit Switch

- Monitors the position of a damper or valve, and when the damper or valve is fully open, it starts the program sequence

Basic Switches

- Used as air-proving switching assemblies or as a float switch for indicating pipe flow backup

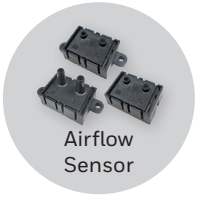


Temperature Sensor

- Placed on gas pilots to shut off the flow of gas if the pilot goes out

CO Sensor

- Used to measure CO levels. During incomplete combustion, part of the carbon is not completely oxidized, producing soot or carbon monoxide. Any gas-burning products pose a risk of giving off CO gases



Airflow Sensor

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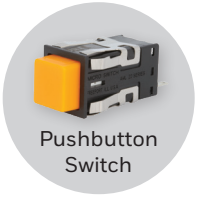
Humidity Sensor

- Maintain occupant comfort for desired humidity and temperature

Magnetic Sensor IC

- Enable efficient control of the electric motors that drive fans, blowers and pumps



Pushbutton Switch

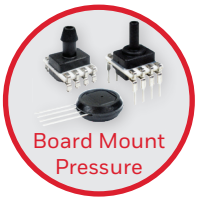
- Activates or deactivates an element or the entire ventilation system

Pressure Switch

- Used to monitor steam pressure (overpressure or low pressure indication) in boilers to prevent a potentially explosive situation

HEATING SYSTEM RESIDENTIAL

Residential heaters systems heat air, which is sent through vents throughout a building to provide heat. The biggest needs for these systems are to be energy efficient and safe. Honeywell sensors provide **efficiency while also detecting faults and leaks.**

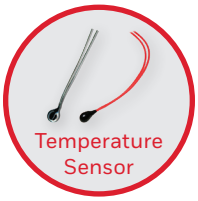


Board Mount Pressure

- Used to monitor the flue pressure to ensure the fan has turned on this keeps flue gases such as carbon monoxide from backing up

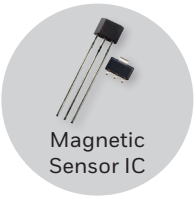
CO Sensor

- Used to detect incomplete combustion. Carbon monoxide is an odorless, colorless gas formed by the incomplete combustion of fuels.



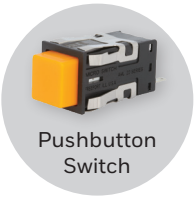
Temperature Sensor

- Used in smart thermostats to efficienty manage the HVAC system while improving occupant comfort



Magnetic Sensor IC

- Enable efficient control of the electric motors that drive fans, blowers and pumps



Pushbutton Switch

- Activates or deactivates an element or the entire ventilation system

Humidity Sensor

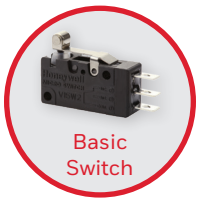
- Used in smart thermostats to efficienty manage the HVAC system while improving occupant comfort

REFRIGERATION SYSTEMS

Refrigeration cools a space, substance or system to lower and/or maintain its temperature below the ambient one. New refrigerants improve the efficiency of the system, and require durable sensors and switches with stable temperatures and burst pressures.

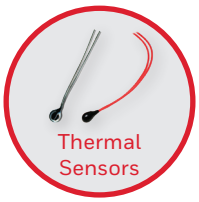
Heavy-Duty Pressure

- Used to provide continuous monitoring of compressor and evaporator outlet pressure



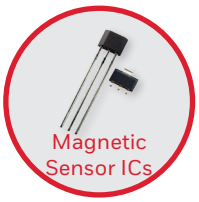
Basic Switch

- Presence detection, on/off function, function monitoring and end-of-travel in a Zone 2 hazardous location



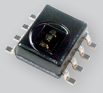
Thermal Sensors

- Used in temperature controllers and for compressor temperature monitoring in refrigeration



Magnetic Sensor ICs

- Enable efficient control of the electric motors that drive fans, blowers and pumps



Humidity Sensor

- Used in smart thermostats to efficienty manage the HVAC system

Toggle Switch

- Activates or deactivates an element or the entire system

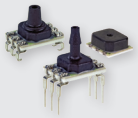
Pushbutton Switch

- Activates or deactivates an element or the entire system

Pressure Switch

- Used to monitor overpressure or low pressure indication to prevent a potentially explosive situation

PRESSURE SENSORS AND TRANSDUCERS



Board Mount Pressure Sensors, Basic ABP/ABP2 Series

- Cost effective, energy efficient, calibrated, and temperature compensated
- As small as 8 mm x 7 mm
- Total Error Band of ±1.5 %FSS
- Pressure range of 2 inH_2O to 175 psi; 6 mBar to 12 bar

Board Mount Pressure Sensors, TruStability™ RSC, HSC and SSC Series

- Extremely tight accuracy of ±0.25 %FSS BFSL
- Total Error Band as low as ±0.25 %FSS (RSC), ±1 %FSS (HSC), or ±2 %FSS (SSC)
- Pressure range of ±2.5 mbar | ±250 Pa | ±1 inH_2O to ±10 bar | ±1 MPa | ±150 psi

Heavy Duty Pressure Transducers, PX3 and PX2 Series

- Designed for configurability - multiple ports, connectors, pressure ranges
- Compatible with common HFC refrigerants and low GWP refrigerants such as R32 and R1234ZE, petroleum oils, lubricants, hydraulic/brake fluids, air, water

Heavy Duty Pressure Transducers, MIP Series

- Rugged stainless steel 304L construction
- Compatible with a wide range of fluids and gases
- Reliable performance over temperature range
- Outstanding EMI/EMC performance
- RoHS, REACH,and CE compliant

Heavy Duty Pressure Transducers, MLH Series

- Compatible with ammonia, common HFC refrigerants, and many low GWP next generation refrigerants such as R32 and R1234ZE
- Pressure range of 50 psi to 8000 psi (inclusive)
- Voltage and current (4 mA to 20 mA) output options
- Rated IP65 or better for protection against harsh environments

HALL-EFFECT AND MAGNETORESISTIVE SENSOR ICs

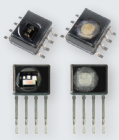
Linear Hall-Effect Sensor ICs, SS490 Series

- Small size with low power consumption
- Single current sinking or current sourcing linear output
- Built-in laser trimmed thin-film resistors allow sensitivity and temperature compensation
- Responds to either positive or negative gauss
- Quad Hall sensing element for stable output

Magnetoresistive Sensor ICs, Nanopower Series (SM351LT/SM353LT); Standard Power Series (SM-351RT/SM451R/SM353RT/SM453R)

- SOT-23 package (SM351LT/SM353LT/SM351RT/SM353RT); flat TO-92-style (SM451R/SM453R)
- Sensitivity of 7 G typ., 11 G max. (SM351LT/ /SM-351RT/SM451R); 14 G typ., 20 G max. (SM353LT/SM353RT/SM453R)
- Omnipolar sensing activates with either pole from a magnet

HUMIDITY/TEMPERATURE SENSORS



Digital Humidity/Temperature Sensors, Honeywell HumidIcon™ HIH6000, HIH6100, HIH7000, HIH8000

- Combined digital output-type relative humidity and temperature sensor
- Industry-leading long term stability (1.2 %RH over five years)
- Industry-leading reliability (MTTF 9,312,507 HR)
- Lowest total cost solution; true, temperature-compensated digital I²C or SPI output
- Energy efficient; ultra-small package

TEMPERATURE SENSORS

Thermistors, 192/194 Series

- High quality, low-cost, resistance temperature-matched interchangeable units
- Dissipation constant in still air: 0,75 mW/°C
- Time constant in air: 15.0 s
- Maximum diameter: 2,413 mm [0.095 in]
- Resistance temperature curve, interchangeability, enhanced stability and life, epoxy coated

GAS SENSORS

Carbon Dioxide Gas Sensor, CRIR-M1 Series

- Single channel, non-dispersive infrared (NDIR) sensor for detecting Carbon Dioxide
- Small size
- Maintenance free for normal indoor applications
- Enhanced long term stability
- Higher accuracy: ±40 ppm ±3 % of reading
- Consistency and repeatability
- Auto baseline correction (ABC)

Carbon Monoxide Gas Sensor, ECOSURE X

- Cost-effective two-electrode electromechanical cell designed for the detection of carbon monoxide i a domestic/residential CO detection, industrial fire detection and ventilation control
- Unique design for use in extreme environments
- Suitable for use in BS, EN, UL, LPC, VDS and TÜV accredited products
- Features an integrated active filter to eliminate false alarms caused by common household vapors

AIRFLOW SENSORS

Honeywell Zephyr™ High Accuracy Airflow Sensors, HAF Series

- Small size with low power consumption
- Single current-sinking or current-sourcing linear output
- Built-in thin-film resistors; laser trimmed for precise sensitivity & temperature comp.
- Rail-to-rail operation provides more usable signal for higher accuracy
- Responds to either positive or negative flow
- 50 SSCM to 300 SLPM flow ranges

PARTICLE SENSORS

Particulate Matter Sensors, HPM Series

- Laser-based light scattering particle sensing
- Concentration range: 0 ˚g/m3 to 1,000 ˚g/m3
- Fully calibrated; response time: <6 s
- Long life of 10 years offers a more stable operation for continuous usage
- Proven EMC performance, based on IEC61000 stable operation, ±15% accuracy (PM2.5)

MICRO SWITCH BASIC SWITCHES

MICRO SWITCH Large Basic Switches, |BZ and WA Series; DT Series

- Accepted world-wide standard “Large Basic” switch
- Low operating force and differential travel
- Long mechanical life up to 20,000,000 cycles at 95 % survival
- Current rating ranges from 15 A to 25 A
- Choice of actuation, termination and operating characteristics
- Two independent single-pole double throw circuits in one housing and actuator (DT)

MICRO SWITCH V-Basic Miniature Switches, V19 Series

- RoHS/REACH/Cal Prop65 compliant
- UL/CSA, cUL, ENEC, CQC certifications enable global design acceptance and cost savings in agency approvals
- 5 A, 16 A: electrical ratings for design flexibility in one industry standard package
- > 1M mechanical operations

MICRO SWITCH V-Basic Miniature Switches, V15 Series

- Designed from 10K to 50K operations at a full load or 5M for mechanical life
- World-wide package size acceptance
- Current rating ranges of 10 A and 26 A
- UL/CSA, cUL, UKCA, ENEC, and CQC approvals

MICRO SWITCH Explosion-Proof Basic Switches, V15W2 Series

- Approved for use in Zone 2 hazardous locations
- IP67 equivalent
- UL, cUL, UKCA, ENEC, CQC, ATEX, IEC Ex approvals
- 5 A electrical rating
- Longer service life: over one million mechanical operations

MICRO SWITCH Subminiature Switches, ZM/ZW/ZX Series

- Best suited for lower cost-of-failure applications
- Small, lightweight, low cost, enhanced life, ample electrical capability
- Choice of low energy or power-duty electrical ratings (gold-plated or silver contacts)
- Choice or ratings, actuation, termination and operating characteristics
- UL/CSA, cUL, ENEC, and CE approvals

MICRO SWITCH TOGGLE SWITCHES

MICRO SWITCH Toggle Switches, NT Series

- ISA 12.12.01 certified; designed for use near flammable hydrocarbon refrigerants
- Quick-connect spade terminals
- UL191 electrical rating
- Sealed to NEMA 3, 3R, 4, 13, and IP67
- Operating temperature range: -40 °C to 71 °C [-40 °F to 160 °F]

MICRO SWITCH PUSHBUTTON SWITCHES

Operator Interface Switches and Indicators, AML Series

- Pushbuttons, paddles, rockers, key-actuated, and indicators within AML Series for coordinated panel appearance
- Less than 1.75 inch panel depth
- Two or three positions and maintained or momentary action
- One-, two-, or four-poles with double throw available for most switches

PRESSURE SWITCHES

Extended Duty Pressure Switches, 5000 Series

- Specifically designed to stand up to extended duty applications
- Factory set but capable of field adjustment
- Direct action blade contact
- Burst pressure: : 750 psi for 0.5 psi to 24 psi set point range; 1250 psi for 25 psi to 150 psi set point range

Warranty/Remedy

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items that Honeywell, in its sole discretion, finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While Honeywell may provide application assistance personally, through our literature and the Honeywell web site, it is customer's sole responsibility to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this writing. However, Honeywell assumes no responsibility for its use.

FOR MORE INFORMATION

Honeywell Sensing and Safety 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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