CONTROLS, MONITORS, AND PRESSURE SWITCHES RANGE GUIDE

Honeywell

For innovation that's well apart, there's only Honeywell.

With more than 50,000 products ranging from basic, limit, toggle, and pressure switches to position, speed, pressure, and airflow sensors, Honeywell has one of the broadest sensing and switching portfolios available.

Honeywell sensor, switch, and control components are tailored to exact specifications for stronger performance, longer productivity, and increased safety. Enhanced accuracy and durability are built into every part, improving output and endurance. For our customers, this can reduce expenditures and operational costs. Our global footprint and channels help to competitively price such components for your chosen application and provide immediate technical support.

Our expertise in aerospace and defense, transportation, medical, and industrial industries means we offer products and solutions for a wide range of applications. But, an impressive product line is only one part. We possess unique engineering expertise and value-added capabilities.

While Honeywell's switch and sensor solutions are suitable for a wide array of basic and complex applications, our custom-engineered solutions offer enhanced precision, repeatability,

and ruggedness. We offer domain knowledge and technology resources, along with a close working relationship, to develop and deliver cost-effective, individually tailored solutions. Whether clean-slate development or simple modifications to an existing design are needed, our expertly engineered solutions help to meet the most stringent requirements with worldclass product designs, technology integration, and customer-specific manufacturing.

With a 75-year legacy in the switch and sensor business, Honeywell has earned a reputation for reliability and excellence. Our strong product designs, Six Sigma Plus manufacturing environment, and robust testing facilities help provide quality out of the box, as well as enhanced, sustainable performance down the line.

Global service, sourcing, and manufacturing. Industry-leading engineers. Value-added assemblies and solutions. Construction to required specifications. A one-stop, full-service, globally competitive supplier... Honeywell.

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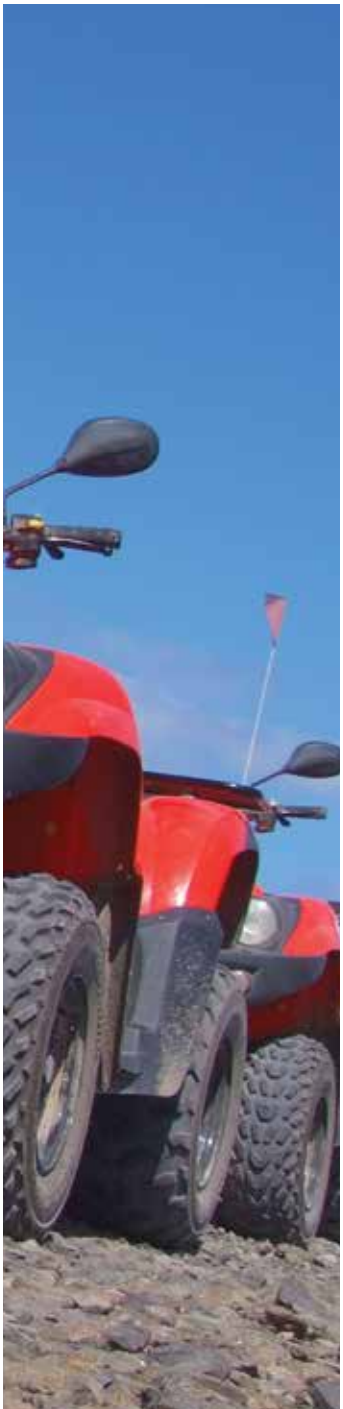
Often used on control panels or machinery in harsh environments, Honeywell key and rotary switches use o-rings to help keep dirt and moisture out of the contact chamber and prolong the switch's life.



Key Series	Integral Connector	Screw Terminal
Connector	Metripack 280 and Sumitomo	screw
Electrical ratings (res.)	12 Vdc, 20 A; 24 Vdc, 8 A	12 Vdc, 20 A; 24 Vdc, 10 A; 48 Vdc, 4 A
Operating temperature	-40 °C to 85 °C [-40 °F to 185 °F]	-40 °C to 85 °C [-40 °F to 185 °F]
Cycle life at electrical load	25000 cycles	25000 cycles
Position	2 position (off-on); 3 position (off-on-start); 3 position (off-on-start), magnetoground; 4 position (off-on-preheat-start)	2 position (off-on); 3 position (off-on-start); 3 position (on-off-on)
Mounting	panel	panel
Approvals	UL available	UL available
Measurements	Ø 1.62 in x 2.95 in L	Ø 1.62 in x 2.85 in L
Features	can be designed to match existing keys; options for up to 300 unique key codes per part number; environmentally sealed; recoil spring allows momentary positions	can be designed to match existing keys; options for up to 300 unique key codes; environmentally sealed; recoil spring allows momentary positions; sliding precious metal contacts

Rotary Series	Integral Connector
Connector	Metripack 280 and Sumitomo
Electrical ratings (res.)	12 Vdc, 20 A; 24 Vdc, 8 A
Operating temperature	-40 °C to 85 °C [-40 °F to 185 °F]
Cycle life at electrical load	25000 cycles
Position	3 position (on-off-on); 3 position (off-on-start); 3 position (off-on-on); 4 position (off-on-acc-start); 4 position (off-ignition-ignition heat-start)
Actuator	lever or knob
Mounting	panel
Approvals	UL available
Measurements	Ø 1.62 in x 2.95 in L
Features	environmentally sealed; recoil spring allows momentary positions

Crafted for enhanced off-highway application performance, precision, direction, and speed control. Sealed and built to withstand rugged conditions and harsh environments. Often used in agricultural equipment, construction and material handling equipment, on-highway and military vehicles, motor coaches, and ground support.

Series	Shifter	Turn Signal
Mounting	left, right	–
Column size	38 mm, 45 mm, 55 mm	38 mm, 45 mm, 55 mm
Neutral lock	none, drop-down	–
Speeds	2, 3, 4, and 6	–
Lights	–	turn signal, head lamp switch/dimmer, flash to pass, hazard warning
Wiper speeds	–	1 speed, hi/lo, intermittent
Buttons	horn, wash, drop-down	wash, horn
Connectors	integral Packard, integral Deutsch, wire harness	integral Packard, integral Deutsch, wire harness
Expected life cycle	1 million (rotary); 500000 (shifter handle)	50000 cycles
Lever	3 million (with drop-down neutral lock); 1 million (without drop-down neutral lock)	–
Operating temperature range	-40 °C to 85 °C [-40 °F to 185 °F] (0 % to 95 % relative humidity)	-40 °C to 85 °C [-40 °F to 185 °F] (0 % to 95 % relative humidity)
Operating volt. range	3 V to 32 V	3 V to 32 V
Handle dead weight	160 lb [712 Newtons]	160 lb [712 Newtons]
Solenoid load	2 A @ 12.8 V with arc suppression	2 A @ 12.8 V with arc suppression
Measurements	Ø 65,02 mm x 220,47 mm L [Ø 2.56 in x 8.68 in L]	Ø 65,02 mm x 232,16 mm L [Ø 2.56 in x 9.14 in L]
Features	IP67; turn signals are built to complement the shifter, or can also be mounted as stand alone	

Robust, environmentally sealed, sliding contact switch incorporating two circuits with multiple combinations. Potential applications include control panels or machinery in harsh environments, including construction, agriculture, marine, material handling, military, machine tools, and mining.

Series	Push-Pull/e-Stop
Connector	screw, wire-out
Position	2NO circuits in push; 2NC circuits in push; 1NO/1NC circuit
Cycle life	25000 cycles (rotary)
Mounting	panel
Chamber sealing	o-ring (IP67 sealing)
Measurements	Ø 45,21 mm [Ø 1.78 in]
Temperature	-40 °C to 100 °C [-40 °F to 212 °F]
Electrical rating	12 Vdc to 14 Vdc, 20 A; 24 Vdc, 10 A
Features	UV resistant button for outdoor use; moisture, contamination, and vibration resistant; sliding contacts; momentary switch option; knob available in a variety of colors

Series	Handlebar and Custom Controls
Features	custom controls designed for most applications requiring multi-functional electrical/electromechanical applications: throttle controls, indicator lights, custom switches, and integrated panel assemblies. Honeywell possesses switch design and packaging expertise when engineering complete, competitive, custom designs. all custom control products are designed to meet customers' specifications.

Description of controls and indicator panels

LEFT HAND CONTROL

- Compact design offers small profile control with high functionality

Offers up to seven independent functions

- Electrical loads up to 14 A, 12 V, varies by function

Wire harness

- Length, wire colors, and connector type fully customizable

Accessory mounting features

- Located on bottom of control
- Allows for optional accessory modules such as: airflow choke (standard offering option), custom auxiliary function

Electrical circuit customizations

- Custom circuit designs allow for customer specific electrical customization while leveraging cost benefits of using platform components for the rest of a control assembly

RIGHT HAND CONTROL

- Two- or three-position switch available
- Adjustable cable travel

Wire harness

- Length, wire colors, and connector type fully customizable

Throttle cable seating

- Can be customized to fit any size or thread type

Micro switch

- Provision for optional micro switch

Electrical circuit customizations

- Custom circuit designs allow for customer specific electrical customization while leveraging cost benefits of using platform components for the rest of a control assembly

Feature set points ranging from 3.5 psi to 3000 psi. These rugged components have enhanced repeatability of set points and wide media capability. Potential applications include transmissions, hydraulics, brakes, power steering, fuel pressure, oxygen concentrators, dental air, generators/compressors, and pool/spa water pressure.

Series	Series 1000	LP Series
Type	hydraulic brake pressure switch	low pressure premium
Set point range	20 psi ±10 psi [1,37 bar ±0,69 bar]	3.5 psi to 150 psi
Contacts	silver-plated copper contacts	gold-plated
Oper. pressure	1200 psi	250 psi max.
Proof pressure	2400 psi	500 psi
Burst pressure	4800 psi	1250 psi
Hysteresis option	no	yes
Connector/ Pressure ports	M10 x 1.25 banjo fitting (single or double); M10 x 1; 1/8-27 NPT	1/4-18 NPT, 1/8-27 NPT, 1/2-20 UNF, 1/8-27 PTF, M12 × 1.5, M14 × 1.5, 9/16-18 UNF, 3/4-16 UNF, G1/8 BSPP, 7/16-20 UNF, R1/8 BSPT, M10 × 1.0, R1/2 BSPT, G1/4 BSPP, R1/4 BSPT
Terminals	1/4 in blade	same terminations as LE, ME, HP, and HE Series
Dimensions	Ø 18 mm hex x 54,10 mm [2.13 in] L	varies, depends upon configuration
Features	IP65; low set point; high burst rating; banjo bolt fitting	up to 2 million life cycle rating; IP67 sealing rating; up to ±2 % switching point accuracy

[1]Port Style C: Switches less than 975 psi will use Base Style B; switches greater than 975 psi will use Base Style A.
Port Styles F and G: Switches less than 350 psi will use Base Style B; switches greater than 350 psi will use Base Style A.
Port Styles A, B, E, M, P, T, and Y will use Base Style B.
Switches less than 150 psi will only use Base Style B.

LE Series	ME Series	HP Series	HE Series
low pressure economy	medium pressure economy	high pressure premium	high pressure economy
3.5 psi to 150 psi	25 psi to 350 psi	100 psi to 4500 psi	150 psi to 4500 psi
gold-plated	gold-plated	silver / gold inlay	silver
250 psi max.	500 psi max.	5000 psi max.	5000 psi max.
500 psi	4000 psi	10,000 psi (Base Style A) 6,500 psi (Base Style B)	10000 psi
1250 psi	8000 psi	20,000 psi (Base Style A) 9,000 psi (Base Style B)	20000 psi
no	no	yes	yes
1/4-18 NPT, 1/8-27 NPT, 1/2-20 UNF, 1/8-27 PTF, M12 × 1.5, M14 × 1.5, 9/16-18 UNF, 3/4-16 UNF, G1/8 BSPP, 7/16-20 UNF, R1/8 BSPT, M10 × 1.0, R1/2 BSPT, G1/4 BSPP, R1/4 BSPT	1/4-18 NPT, 1/8-27 NPT, 1/2-20 UNF, 1/8-27 PTF, M12 × 1.5, M14 × 1.5, 9/16-18 UNF, 3/4-16 UNF, G1/8 BSPP, 7/16-20 UNF, R1/8 BSPT, M10 × 1.0, R1/2 BSPT, G1/4 BSPP, R1/4 BSPT	1/4-18 NPT, 1/8-27 NPT, 1/2-20 UNF, M12 × 1.5, M14 × 1.5, 9/16-18 UNF, 3/4-16 UNF, M18 x 1.5, 7/16-20 UNF, 7/8-14 UNF, 1/2-14 NPT, M10 × 1.0, G1/4 BSPP (see note 1)	1/2-20 UNF, M14 × 1.5, 9/16-18 UNF, 3/4-16 UNF, M18 × 1.5, 7/8-14 UNF
spade terminals, screw terminals, Deutsch DT04-3P-E005 (3-pin connector), Amp Super Seal 1.5 - 282105-1 (3-pin connector), 10-inch cable, 18 AWG (wire out, no connector), 10-inch cable with Deutsch DT04-3P-E005 (3-pin connector) (16 AWG), 10-inch cable with Amp Super Seal 1.5 - 282105-1 (3-pin connector) (18 AWG), 10-inch cable with Metripack 280 Delphi 15300002 (2-pin connector) (18 AWG), 10-inch cable with Din43650-C (3-pin connector) (18 AWG), 10-inch cable with M12x1 (Brad Harrison micro) - 21032121306 Harting P/N (3-pin connector) (18 AWG), 10-inch cable with Packard Weatherpack male terminal - 12020827 (3-pin connector) (18 AWG), 10-inch cable with Deutsch DT04-2P-E005 (2-pin connector) (18 AWG), 3-inch cable with Packard 2P tower connector - 12015792 (2-pin connector) (18 AWG), 2.75-inch cable with Packard 2P shroud connector - 12010973 (2-pin connector) (18 AWG), 4-inch cable with Packard 2P shroud connector - 12010973 (2-pin connector) (16 AWG), 5.5-inch cable with ITT Cannon 2P Sure-Seal circular connector - SS2R-120-1804-000 (2-pin connector) (18 AWG), 8.5-inch cable with ITT Cannon 3P Sure-Seal circular connector - SS3R-120-8551-001 (3-pin connector) (16 AWG), 10-inch cable - vacuum impregnated with Deutsch DT06-3S-EP06 (3-Socket connector) (16 AWG), 10-inch cable - vacuum impregnated with Deutsch DT04-3P-E005 (3-pin connector) (16 AWG), 4.5-inch cable with blade terminals 6,3 mm x 0,8 mm (16 AWG), 10-inch cable with Metripack 2-pin shroud connector 153000027 (18 AWG), 6-inch cable with Amp Super Seal 1.5 - 282104-1 (2-pin connector) (18 AWG), 10-inch cable with Deutsch DT06-2S-CE06 (2-socket connector) (18 AWG), Deutsch DT04-2P-E005 (2-pin connector), 10-inch cable with Metripack 150 Delphi 12129615 (3-pin connector) (18 AWG), 6-inch cable with AMP Super Seal 1.5 - 282080-1 (2-pin connector) (18 AWG), 10-inch cable with AMP 2,5 mm system series connector 1-967402-1 (18 AWG), 4.5-inch cable with Packard shroud connector 12015792 (2-pin connector) (18 AWG), 10-inch cable with Metripack 150 Delphi 12052641 (2-pin connector) (18 AWG), 8.5-inch cable with Deutsch Plug HD 16-3 96S (3-pin connector) (16 AWG)			
varies, depends upon configuration	varies, depends upon configuration	varies, depends upon configuration	varies, depends upon configuration
up to 1 million life cycle rating; IP67 sealing rating; up to ±2 % switching point accuracy	up to 1 million life cycle rating; IP67 sealing rating; up to ±2 % switching point accuracy	up to 2 million life cycle rating; IP67 sealing rating; up to ±2 % switching point accuracy	up to 1 million life cycle rating; IP67 sealing rating; up to ±2 % switching point accuracy

Honeywell's 5000 Series stands up to extended-duty applications. Factory set, it features a fluorosilicone rubber diaphragm for compatibility with a wide variety of fluids. Various terminations, including a Metripack connect that forms a tight seal when connected.

Series	5000 Vacuum
Type	direct-action blade contact
Set point range	factory set: 1.1 in-Hg to 22 in-Hg
Vacuum	1.1 in-Hg to 22 in-Hg
Contacts	composite-gold plate
Operating pressure	30 in-Hg max.
Burst pressure	150 psi
Connector	1/8-27 NPT male thread standard (others, including metric, available)
Terminals	#8-32 screws, 1/4 in blade, Metripack 280
Dimensions	Ø 1.47 in x 2.3 in L (screw); Ø 1.47 in x 2.9 in L (Metripack 280)
Features	stands up to extended-duty applications; factory set; fluorosilicone rubber diaphragm

Range of versatile, low-cost, ultra-low pressure switches and sensors. Compact, lightweight, feature high reliablity, and are designed to yield a repeatable response over millions of cycles. They can be mounted in virtually any orientation and their rugged construction allows use in the most rigorous environments.

FOR SALE IN EMEA ONLY

FOR SALE IN EMEA ONLY

Series	PBN1	PBN3
Type	direct action blade contact	snap-action switch
Set point range	0.018 psi to 1.8 psi	0.036 psi to 40.0 psi
Contacts	gold inlay	silver
Operating pressure	6 psi for 0.018 psi to 0.108 psi; 12 psi for 0.144 psi to 1.8 psi	12 psi for 0.036 psi to 2.71 psi; 60 psi for 3.0 psi to 40.0 psi
Proof pressure	8 psi for 0.018 psi to 0.108 psi; 15 psi for 0.144 psi to 1.8 psi	15 psi for 0.036 psi to 2.71 psi; 100 psi for 3.0 psi to 40.0 psi
Burst pressure	30 psi	60 psi for 0.036 psi to 2.71 psi; 150 psi for 3.0 psi to 40.0 psi
Connector	5 mm smooth perpendicular, 5 mm barbed radial	5 mm smooth perpendicular, 5 mm barbed radial
Terminals	4,8 mm x 0,5 mm blades	6,3 mm x 0,8 mm blades
Approvals	FOR SALE IN EMEA ONLY	FOR SALE IN EMEA ONLY
Features	sensitive to ultra-low pressures; gage, vacuum, and differential measurement	high current switching capacity; sensitive to low gage pressures

Records and tracks total elapsed time of equipment usage. All parts are in-process tested for functionality and timing accuracy before shipping. Often used in lawn and garden, generators, compressors, panel assemblies, sport/utility vehicles, on-and-off highway, transportation, mining, lifts, and recreational vehicles.

Series	LM Series	20000
Type	ac or dc micro-controller LCD unit	ac
Counting range	0 to 99,999.9 hours	records up to 99,999.9 hours with automatic roll over to zero
Sealing	IP67	IP65
Voltage range	9 V to 64 V dc/ac (50 Hz to 500 Hz)	24 Vac, 120 Vac, 240 Vac/50 Hz, 60 Hz
Accuracy	±200 ppm/hour	±0.02 %
Termination	1/4 in blades; 3/16 in blades	screw, 7 in lead wires
Approvals	UL, CE	UL, CSA, CE
Mount/panel cutout opening	diamond and diamond (no bezel): 24,13 mm x 44,45 mm [0.95 in H x 1.75 in W] standard: 24,13 mm x 36,83 mm [0.95 in H x 1.45 in W] round: Ø 50,8 mm [Ø 2.00 in] rectangle: 22,35 mm x 44,96 mm [0.88 in H x 1.77 in W]	2-screw, rectangular and square: 36,8 mm x 24,1 mm [1.45 in x 0.95 in]; round: 50,8 mm [2.0 in] dia.
Operating temperature	-40 °C to 85 °C [-40 °F to 185 °F]	-54 °C to 68 °C [-65 °F to 154 °F]
Number size	7 mm	3 mm [0.12 in]
Case material	Makroblend	polycarbonate
Measurements	diamond: 31,75 mm x 54,10 mm x 34,29 mm [1.25 in H x 2.13 in W x 1.35 in D] standard: 27,43 mm x 40,64 mm x 34,29 mm [1.08 in H x 1.60 in W x 1.35 in D] round: Ø 57,66 mm x 33,78 mm [Ø 2.27 in x 1.33 in D] rectangle: 24,13 mm x 48,26 mm x 32,77 mm [0.95 in H x 1.90 in W x 1.29 in D] diamond (no bezel): 26,16 mm x 52,07 mm x 34,29 mm [1.03 in H x 2.05 in W x 1.35 in D]	rectangular: 25,9 mm H x 35,5 mm W x 64,8 mm D [1.02 in H x 1.40 in W x 2.55 in D] round: Ø 68,60 mm x 60,50 mm D [Ø 2.70 in x 2.38 in D]
Features	backlight and large 7 mm display; digital, microcontrol unit LCD; durable design of mounting assembly, IP67 environmental sealing	shock-resistant, tamper-proof case; sealed; single phase, synchronous, lubricated motor

28100	301	85000	82400
ac	ac	dc	dc
0 to 99,999.9 hours with automatic roll over to zero	0 to 99,999.90 hours	10,000 hour version standard, with automatic recycle to zero	0 to 9999.9; 0 to 99,999.9 (optional)
IP66 front (IP40 rear)	IP40 front (IP00 terminals)	IP66	IP66
90 Vac to 264 Vac/50 Hz, 60 Hz	120 Vac, 240 Vac/50 Hz, 60 Hz	5 Vdc to 110 Vdc	10 Vdc to 80 Vdc (polarity insensitive)
±0.02 %	±0.02 %	±0.02 %	±0.02 %
1/4 in spade	1/4 in spade	1/4 in male blade, #8-32 stud, Deutsch, Packard terminals	1/4 in spade
UL, CSA, CE	UL, CE	UL, CSA	–
2-screw and rectangular: 36,8 mm x 24,1 mm [1.45 in x 0.95 in]; round: 50,8 mm [2.0 in] dia.	2-screw and rectangular: 36,8 mm x 24,1 mm [1.45 in x 0.95 in]	2-screw, stirrup: 36,8 mm x 24,1 mm [1.45 in x 0.95 in] round, flush; 3-screw: 50,8 mm [2.0 in]	2-screw & rectangular: 36,8 mm x 24,1 mm [1.45 in x 0.95 in]; 3-screw and round: 50,8 mm [2.0 in] dia.
-40 °C to 85 °C [-40 °F to 185 °F]	-25 °C to 70 °C [-13 °F to 158 °F]	-40 °C to 85 °C [-40 °F to 185 °F]	40 °C to 85 °C [-40 °F to 185 °F]
3 mm [0.12 in]	4 mm [0.16 in]	3 mm [0.12 in]	3 mm [0.12 in]
polycarbonate	polycarbonate	polyester	polycarbonate
rectangular: 27,4 mm H x 40,6 mm W x 55,6 mm D [1.08 in H x 1.60 in W x 2.19 in D] round: Ø 56,9 mm x 55,1 mm D [Ø 2.24 in x 2.17 in D]	27,4 mm H x 40,6 mm W x 55,6 mm D [1.08 in H x 1.60 in W x 2.19 in D]	rectangular: 26,16 mm H x 39,37 mm W x 55,63 mm D [1.03 in H x 1.55 in W x 2.19 in D] round: Ø 57,66 mm [Ø 2.27 in]	rectangular: 26,16 mm H x 39,37 W x 55,63 mm D [1.03 in H x 1.55 in W x 2.19 in D] round: Ø 56,90 mm [Ø 2.70 in]
operates over a full range of voltages and frequencies; sealed from dirt and moisture; custom lens and terminal orientation options	reads to 1/100 of an hour for greater resolution; enhanced accuracy and quiet operation	custom CMOS integrated circuit; sealed	non-polarity sensitive design; sealed terms

As one of the world's leading providers of sensors and switches, Honeywell understands and meets the requirements of a wide variety of industries.

Honeywell is a global leader in providing reliable, cost-effective sensing and switching solutions for our customers' applications. We serve thousands of customers in four core industry segments: industrial, medical equipment, transportation, and aerospace/military products.

Aerospace

Aerospace applications are among the most demanding for any type of product. Rigorous FAA requirements, extreme environments (temperature, shock, vibration, the need for hermetic sealing), and the ability to customize devices are just a few of the parameters often required of sensors and switches in these applications. Aerospace customers typically value speed in prototyping and development, and Honeywell's vertically integrated, AS9100-approved manufacturing locations enhance our ability to produce devices in a wide variety of packages. The precision output of our products helps reduce risk and cost in key applications while also minimizing the need for unscheduled maintenance.

Honeywell's in-depth aerospace engineering experience allows us to work with customers in the design and development of products that best meet the specified requirements of their individual applications. Making products simple to install makes the job easier every step of the way. And, the odds are that Honeywell is already on the list of trusted suppliers for many aerospace companies, underscoring the decades of experience we bring to this field.

Honeywell products for this industry (many of them PMA-certified) include force sensors, load cells, potentiometers, pilot controls, pressure sensors, pressure switches, resolvers, sensor/actuator assemblies for systems ranging from aerostructures to fuel control to flight surfaces, speed sensors, temperature probes, thermostats, torque sensors, y-guides for cargo systems, MICRO SWITCH™ sealed and high-accuracy switches, MICRO SWITCH™ pushbutton switches, and MICRO SWITCH™ rocker and toggle switches.

Medical

Medical applications typically require sensors and switches that are highly stable and extremely reliable to enhance patient safety and comfort. Stability is often essential to minimize long term drift, reduce the need for recalibration, and improve ease of use for medical equipment operators. Reliability enhances patient safety in life-critical applications, reduces downtime, and improves test throughput in applications such as clinical diagnostics. The product needs to be easy to use and easy to design into a system, so Honeywell's extensive customization and built-in calibration/amplification capabilities are strong benefits. Confidence in Honeywell's product performance, reliability, and availability provide peace of mind for medical equipment manufacturers who choose Honeywell.

Honeywell offerings for this industry include airflow sensors, board mount and stainless steel media isolated pressure sensors, Hall-effect magnetic position sensors, humidity sensors, flexible heaters, force sensors, thermostats, commercial solid state sensors, infrared sensors, oxygen sensors, pressure and vacuum switches, potentiometers and encoders, MICRO SWITCH™ pushbutton, rocker, and toggle switches, and hour meters.

Industrial

The industrial arena can be a rough one. From high-speed food processing to high-force stamping applications, reliable and cost-effective sensors and switches often help minimize repair costs, maximize system life, and reduce overall system expense. Durability can mean the difference between smooth-running processes and expensive downtime. Accurate, repeatable sensor or switch output can reduce the need for calibration once the device is applied. Because of the wide variety of potential applications, Honeywell's ability to deliver a customized product that can meet virtually any size, weight, and power requirement – as well as any packaging stipulations for tough, harsh environments – often makes it easy to incorporate and use our devices. Safety is another important consideration for industrial users, and our products meet a wide variety of regulatory safety requirements.

Honeywell's industrial product line includes airflow sensors, current sensors, humidity sensors, fiber-optic and liquid-level sensors, linear position sensors, oxygen sensors, pressure sensors, potentiometers and encoders, speed sensors, temperature probes, ultrasonic sensors, wirewound resistors, thermostats, commercial solid state sensors, flex heaters, SMART position sensors, board mount and stainless steel media isolated pressure sensors, force sensors, safety light curtains, push-pull switches, and MICRO SWITCH™ basic switches, hazardous area switches, safety switches, key and rotary switches, limit switches, sealed and high-accuracy switches, pushbutton, rocker, toggle switches, and relays.

Transportation

Getting from Point A to Point B is often challenging for end-customers of transportation providers – Honeywell aims to make the trip easier with highly reliable, cost-effective switches and sensors. Our products are designed to support rigorous engine requirements, and their efficiency can also help optimize engine performance. Customization is often required to allow a switch or sensor to be mounted in tight or challenging environments including vibration, temperature extremes, and road contamination. The durability of Honeywell products enhances system reliability, which is also boosted by the stable, accurate output of our devices. All of these capabilities allow demanding customers to rely on Honeywell's many years of experience in the transportation industry.

Honeywell products for transportation applications include Hall-effect rotary position sensors, inertial measurement units, infrared sensors, keyless entry sensors, magnetic position sensors, pressure sensors, speed and direction sensors, ultrasonic sensors, thermostats, temperature probes, commercial solid state sensors, SMART position sensors, and MICRO SWITCH™ pushbutton, rocker, and toggle switches.

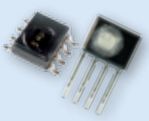
Product Portfolio — Product reliability. Industry knowledge. Expertise. Standard with every order.

SENSORS

Thermostats: Commercial and precision snap-action. Automatic or manual reset options, phenolic or ceramic housings.
May be used in: Telecommunications • Battery Heater Controls • Computers • Copy Machines • Fax Machines • Food Service • Food Carts • Small and Major Appliances • Heat and Smoke Detectors • HVAC Equipment

Pressure transducers – heavy duty: Provide a complete amplified and compensated pressure measurement solution. Choice of ports, connectors, outputs and pressure ranges, engineered to be resistant to a wide variety of media for use in most harsh environments.
May be used in: Industrial HVAC/R and Air Compressors • General System and Factory Automation Pump, Valve and Fluid Pressure • Transportation (Heavy Equipment and Alternative Fuel Vehicles) System • Pneumatics • Hydraulics

Pressure sensors – heavy duty: Small, allowing use on their own in tight packages or as the building block for a complete transducer. Developed for potential use in pressure applications that involve measurement of hostile media in harsh environments compatible with 316 stainless steel.
May be used in: Industrial Controls • Process Control Systems • Industrial Automation



Humidity sensors: Digital, analog, and combined humidity/temperature sensing versions. Provide on-chip signal conditioning with accuracy capability to ±1.7 %RH. Stable, reliable, low-drift performance. Standardized, platform-based sensors.
May be used in: Medical • HVAC/R • Weather Stations • Air Compressors • Telecommunications • Grain Storage • Incubators

Current sensors: Accurate and fast response. Almost no thermal drift or offset with temperature. Adjustable linear, null balance, digital and linear current sensors.
May be used in: Variable Speed Drives • Overcurrent Protection • Power Supplies • Ground Fault Detectors • Robotics • Industrial Process Control • Wattmeters

Flexible heaters: Flat or custom geometry configurations with single, multiple and variable watt densities. Stable, uniform heating. Can be bonded parts or combined in value-added assemblies.
May be used in: Medical • HVAC/R • LCD Displays • Power Generation • Telecommunication

Pressure sensors – board mount: Full line of industrial-grade sensors: media-isolating design, multiple ports and outlets, and electrical configurations.
May be used in: Pneumatic Controls • Air Compressors • Process Monitoring • Hydraulic Controls • VAV Controls • Clogged Filter Detection • Presence/Absence of Flow • Transmissions

Temperature sensors: Customized probes, thermistors and RTD sensors. Plastic/ceramic, miniaturized, surface-mount housings and printed circuit board terminations.
May be used in: Semi-Conductor Protection • Vending Machines • Power Generation • Hydraulic Systems • Medical • Thermal Management • Temperature Compensation

Magnetic sensors: Digital and analog Hall-effect position ICs, magnetoresistive position ICs, Hall-effect vane, gear-tooth and magnetic sensors.
May be used in: Speed and RPM Sensing • Motor/Fan Control • Magnetic Encoding • Disc Speed • Tape • Flow-Rate Sensing • Conveyors • Ignitions • Motion Control/Detection • Power/Position • Magnetic Code Reading • Vibration • Weight Sensing

ELECTROMECHANICAL SWITCHES

MICRO SWITCH™ basic switches: Snap-action precision switches. Compact. Lightweight. Designed for repeatability and enhanced life. Basic switches: large, standard, miniature, subminiature, hermetically sealed, water-tight and high-temperature versions.
May be used in: Vending Machines • Communication Equipment • HVAC • Appliances • Automotive • Electronic Gaming Machinery • Valve Controls • Irrigation Systems • Foot Switches • Pressure • Temperature Controls

MICRO SWITCH™ sealed and high accuracy switches: Precision "snap action" mechanisms. Wide variety of actuators, terminations, circuitry configurations, electrical ratings, contact materials and operating characteristics.
May be used in: Landing Gear • Flap/Stabilizer Controls • Thrust Reversers • Space Vehicles • Armored Personnel Carriers • De-Icer Controls • Wingfold Actuators • Industrial Environments • Valves • Underwater

MICRO SWITCH™ hazardous area switches: Flame path designed to contain and cool escaping hot gases that could cause an explosion. MICRO SWITCH™ EX, BX, CX and LSX Series.
May be used in: Grain Elevators and Conveyors • Off-Shore Drilling • Petrochemical • Waste-Treatment Plants • Control Valves • Paint Booths • Hazardous Waste Handling Facilities

Key and rotary switches: Environmentally sealed, 2-3-4 position switches. O-rings help keep dirt and moisture out and prolong life.
May be used in: All-Terrain Vehicles • Golf Carts • Snowmobiles • Scissor Lifts • Telehandlers • Construction and Marine Equipment • Skid Loaders • Agricultural Equipment • Material Handlers

Pressure and vacuum switches: Feature setpoints from 3 psi to 4500 psi. Rugged components have enhanced repeatability, flexibility and wide media capability. Uses diaphragm or quad seal/piston.
May be used in: Transmissions • Hydraulics • Brakes • Steering • Generators/Compressors • Dental Air • Embalming Equipment • Oxygen Concentrators • Air Cleaners • Fuel Filters • Pool Water Pressure

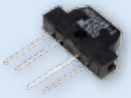
MICRO SWITCH™ toggle switches: Hermetic and environmentally sealed options. Enhanced reliability. Center pin for ultimate stabilization. Available in many shapes, sizes and configurations.
May be used in: Aerial Lifts • Construction Equipment • Agriculture and Material-Handling Equipment • Factory-Floor Controls • Process Control • Medical Instrumentation • Test Instruments • Military/Commercial Aviation

LIMITLESS™ WIRELESS SOLUTIONS

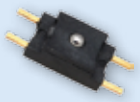
Limitless™ switches and receivers: Combines the best of MICRO SWITCH™ limit switches with commercial wireless technology. Beneficial for remote monitoring where wiring/maintenance is not physically possible or economically feasible. Used for position sensing and presence/absence detection.
Limitless™ Operator Interface: Adds a human interface device to the product-driven interfaces of Limitless™ switches and receivers. Choose and install a desired operator or utilize one of Honeywell's pushbuttons.
May be used in: Valve Position • Crane Boom/Jib/Skew Position • Lifts • Material Handling • Presses • Construction/Ag Machines • Conveyors • Industrial Environments • Remote/Temporary Equipment • Grain Diverters or Flaps • Door Position

With more than 50,000 sensing, switching and control products ranging from snap-action, limit, toggle and pressure switches to position, speed, pressure and airflow sensors, Honeywell has one of the broadest sensing and switching portfolios available.

Position sensors: The **SMART position sensor** measures linear, angular or rotary position of a magnet attached to a moving object so that the object's position can be determined or controlled. Its simple, non-contact design eliminates mechanical failure mechanisms, reduces wear and tear, and improves reliability and durability.
May be used in: Valve Position • Material Handling • Plastic Molding • Passenger Bus Level Position • Truck-Mounted Crane Outrigger Position • Aerial Work Lift Platform • Front Loader and Digger/Excavation Boom Position
Potentiometer sensors: Measure linear, rotary position or displacement. Honeywell's proprietary conductive plastic delivers extensive temperature range and infinite resolution, and provides precision position measurement.
May be used in: Robotic Motion Control • Marine Steering • In-Tank Level Sensing
Ultrasonic sensors: Measure time delays between emitted and echo pulses, often accurately determining the sensor-to-target distance.
May be used in: Level Measurement • Height and Thickness Sensing • Diameter Control



Infrared sensors: IREDs, sensors and assemblies for object presence, limit and motion sensing, position encoding and movement encoding. Variety of package styles, materials and terminations.
May be used in: Printers/Copiers • Motion Control Systems • Metering • Data Storage Systems • Scanning • Automated Transaction • Drop Sensors • Non-Invasive Medical Equipment



Force sensors: Variety of package styles and various electrical interconnects including pre-wired connectors, printed circuit board mounting and surface mounting for flexibility.
May be used in: Infusion and Syringe Pumps • Blood Pressure Equipment • Pump Pressure • Drug Delivery Systems • Occlusion Detection • Kidney Dialysis Machines

Proximity sensors: Designed to meet demanding temperature, vibration, shock and EMI/EMP interference requirements. Number of housing materials and termination styles.
May be used in: Aircraft Landing Gear • Gun Turret Position Control • Door/Hatch Monitoring

Speed sensors: Measure speed, position and presence detection utilizing magnetoresistive, variable reluctance, and Hall-effect technologies.
May be used in: Cam and Crankshafts • Transmissions • Fans • Pumps • Mixers • Rollers • Motors

Airflow sensors: Advanced microstructure technology. Sensitive and fast response to flow, amount/direction of air or other gas. Analog or digital output. Thin-film, thermally isolated bridge structure consists of a heater and temperature sensing elements.
May be used in: HVAC • Respirators • Process Control • Oxygen Concentrators • Gas Metering • Chromatography • Leak Detection Equipment • Medical/Analytical Instrumentation • Ventilation Equipment

Rotary position sensors: Digital and analog Hall-effect, magnetoresistive and potentiometric devices and resolvers for sensing presence of a magnetic field or rotary position. Directly compatible with electronic circuits for application flexibility.
May be used in: Audio and Lighting • Frequency • Temperature • Position • Medical/Instrumentation • Computer Peripherals • Manual Controls • Joysticks • Telecom • Welding • Heating • Aerospace

MICRO SWITCH™ aerospace-grade pressure switches: Lightweight, compact pressure switches. Meets military and DO-160 standards. Lower operating force provides application versatility with enhanced precision. Design modularity allows for configuration of the switch, facilitating rapid customization.
May be used in: Aerospace Systems • Engines, Fuel Pressure and Hydraulic Systems • Military Ground Vehicles • Ordnance and Munitions Release Systems • Military Maritime Systems

MICRO SWITCH™ limit switches: Broadest and deepest limit switch portfolio. Rugged, dependable position detection solutions. MICRO SWITCH™ heavy-duty limit switches (HDLS), medium-duty and global limit switches. Hermetically and environmentally sealed switches.
May be used in: Machine Tools • Woodworking • Textile • Printing Machinery • Metal Fabrication • Balers/Compactors • Forklifts • Bridges • Robotics • Wind Turbines • Elevators • Moving Stairs • Doors • Dock Locks/Levelers • Aerial Lifts • Cranes • Conveyors • Rail • Shipboards • Dock Side

MICRO SWITCH™ pushbutton switches: Lit or unlit. Wide range of electrical and display design, pushbuttons and manual switches. Many shapes, sizes and configurations. Easy to apply, operate and maintain.
May be used in: Control Boards and Panels • Industrial and Test Equipment • Flight Decks • Medical Instrumentation • Process Control

MICRO SWITCH™ sealed and standard rocker switches: Wide range of electrical and display design. Many shapes, sizes, buttons and configurations to enhance manual operation.
May be used in: Transportation • Agricultural and Construction Equipment • Test Equipment • Heavy-Duty Machinery • Marine Equipment • Small Appliances • Telecom • Medical Instrumentation • Commercial Aviation

SAFETY PRODUCTS

MICRO SWITCH™ safety switches: For operator point-of-operation protection, access detection, presence sensing, gate monitoring and electrical interfacing. High-quality, dependable, cost-effective solutions.
May be used in: Packaging and Semi-Conductor Equipment • Plastic-Molding Machinery • Machine Tools • Textile Machines • Lifts • Industrial Doors • Balers • Compactors • Aircraft Bridges • Telescopic Handlers • Refuse Vehicles

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 it 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 we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer 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 printing. However, we assume no responsibility for its use.

Find out more

To learn more about Honeywell's sensing and switch products, call **+1-815-235-6847**, email inquiries to **info.sc@honeywell.com**, or visit **sensing.honeywell.com**

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009592-7-EN IL50 GLO
December 2015