Speed Sensors

Honeywell

SENSING AND CONTROL

Product Range Guide

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

With more than 50,000 products ranging from snap-action, limit, toggle, and pressure switches to position, speed, pressure, and airflow sensors, Honeywell Sensing and Control (S&C) 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 S&C 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 Sensing and Control.

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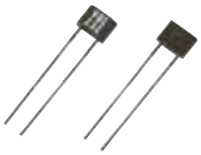
Magnetic Sensors
Magnetoresistive Sensor ICs

With a built-in magnetoresistive bridge integrated on silicon and encapsulated in a plastic package, magnetoresistive sensor ICs feature an integrated circuit that responds to low fields at large distances. Potential applications include laptops, material handling equipment, and pneumatic cylinders.



Series	2SS52M/SS552MT	VF401	APS00B
Description	omnipolar magnetoresistive digital sensor IC	2-wire MR fine pitch ring magnet sensor IC	high resolution magnetic displacement sensor IC
Magnetic actuation type	omnipolar	differential bridge	analog, saturated mode
Package material and style	2SS52M: plastic radial leads SS552MT: plastic surface mount (SOT-89)	plastic flat, TO-92-style	plastic surface mount (SO-8)
Supply voltage range	3.8 Vdc to 30 Vdc	4.5 Vdc to 16 Vdc	1 Vdc to 12 Vdc
Supply current	11 mA max.	Icc operate: 16.8 mA max. Icc release: 8.4 mA max.	7 mA max.
Output type	digital sinking	digital current source	sin(2Θ), cos(2Θ)
Operating temperature range	-40 °C to 150 °C [-40 °F to 302 °F]	-40 °C to 150 °C [-40 °F to 302 °F]	-40 °C to 150 °C [-40 °F to 302 °F]
Measure-ments (H x W)	2SS52M: 4,5 mm x 4,5 mm [0.18 in x 0.18 in] SS522MT: 4,2 mm x 4,5 mm [0.16 in x 0.18 in]	2,8 mm x 2,9 mm [0.11 in x 0.11 in]	4,9 mm x 6,0 mm [0.19 in x 0.24 in]
Features	omnipolar magnetics; sinking output, low gauss operation (25 G max.); operating speed of 0 kHz to over 100 kHz; tape and reel available	wide speed capability; output pat-tern independent of gap between target and sensor; improved insensitivity to run-out, tilt, and twist; reverse polarity protection	dual analog voltages respond-ing to changes in magnetic field angle; sine and cosine output; accurate to 0,102 mm [0.004 in]; tape and reel available

Magnetic Sensors
Hall-Effect Digital Sensor ICs

Constructed from a thin sheet of conductive material, Hall-effect sensor ICs have output connections perpendicular to direction of current flow. Potential applications are many, including speed and RPM sensing, brushless dc motors, and fan/motor/robotics.




Series	SL353	SS30AT/ SS40A/ SS50AT	SS311PT/ SS411P	SS340RT/ SS440R
Description	micropower omnipolar Hall-effect digital sensor IC	low-cost bipolar Hall-effect digital sensor IC	low-cost bipolar Hall-effect digital sensor IC with built-in pull-up resistor	low-cost unipolar Hall-effect digital sensor IC
Magnetic actuation type	omnipolar	bipolar	bipolar	unipolar
Package material and style	plastic surface mount (SOT-23)	SS40A: plastic radial lead SS30AT/SS50AT: plastic surface mount (SOT-23 & SOT-89)	SS311PT: plastic surface mount (SOT-23) SS411P: plastic radial lead	SS340RT: plastic surface mount (SOT-23) SS440R: plastic radial lead
Supply voltage	2.2 Vdc to 5.5 Vdc	4.5 Vdc to 24 Vdc	2.7 Vdc to 7 Vdc	3 Vdc to 18 Vdc, except SS340RT >125 °C [247 °F]: 3 Vdc to 12 Vdc
Supply current	SL353LT: 1.8 µ typ. @ 2.8 Vdc; SL353HT: 0.33 mA typ. @ 2.8 Vdc	10 mA max. at 25 °C [77 °F]	14 mA max.	8 mA
Output type	digital	digital sinking	digital sinking	digital sinking
Operating temperature range	-40 °C to 85 °C [-40 °F to 185 °F]	SS40A: -40 °C to 125 °C [-40 °F to 257 °F] SS30AT/SS50AT: -40 °C to 125 °C [-40 °F to 257 °F]	-40 °C to 150 °C [-40 °F to 302 °F]	SS340RT (3 Vdc to 24 Vdc): -40 °C to 125 °C [-40 °F to 257 °F] SS340RT (3 Vdc to 12 Vdc): -40 °C to 150 °C [-40 °C to 302 °F] SS440R (3 Vdc to 24 Vdc): -40 °C to 150 °C [-40 °F to 302 °F]
Measurements (H x W)	2,8 mm x 2,9 mm [0.11 in x 0.11 in]	SS30AT: 2,8 mm x 2,9 mm [0.11 in x 0.11 in] SS40A: 3,0 mm x 4,1 mm [0.12 in x 0.16 in] SS50AT: 4,2 mm x 4,5 mm [0.16 in x 0.18 in]	SS311PT: 2,8 mm x 2,9 mm [0.11 in x 0.11 in] SS441P: 3,0 mm x 4,1 mm [0.12 in x 0.16 in]	SS340RT: 2,8 mm x 2,9 mm [0.11 in x 0.11 in] SS440R: 3,0 mm x 4,1 mm [0.12 in x 0.16 in]
Features	low supply voltage combined with very low average current reduces power consumption, provides extended battery life, and promotes energy efficiency	bipolar magnetics; high output current and speed capability; reverse polarity protection	bipolar magnetics; built-in pull-up resistor; low voltage; enhanced sensitivity	unipolar magnetics; simple activation from a South pole and multiple magnetic sensitivites (high, medium, and low); low voltage; built-in reverse polarity protection

					
SS345PT/ SS445P	**SS351AT/ SS451A**	**SS361CT/ SS461C**	**SS361RT/ SS461R**	**SS400/SS500**	**SS41/SS51T**
unipolar Hall-effect digital sensor IC	low-cost omnipolar Hall-effect digital sensor IC	high sensitivity, bipolar latching Hall-effect digital sensor IC	low-cost Hall-effect digital sensor IC	SS400: Hall-effect digital sensor IC SS500: unipolar/bipolar/ bipolar latching Hall-effect digital sensor IC	bipolar Hall-effect digital sensor IC
unipolar	omnipolar	bipolar latching	bipolar latching	unipolar, bipolar, bipolar latching	bipolar
SS345PT: plastic surface mount (SOT-23) SS445P: platic radial lead	SS351AT: plastic surface mount (SOT-23) SS451A: plastic radial lead	SS361CT: plastic surface mount (SOT-23) SS461C: plastic radial lead	SS361RT: plastic surface mount (SOT-23) SS461R: plastic radial lead	SS400: plastic radial lead SS500: plastic surface mount (SOT-89)	SS41: plastic radial lead SS51T: plastic surface mount (SOT-89)
2.7 Vdc to 7.0 Vdc	SS351AT (-40 °C to 125 °C [-40 °F to 257 °F]): 3 Vdc to 24 Vdc; SS351AT (150 °C [302 °F]): 3 Vdc to 12 Vdc SS451A (-40 °C to 150 °C [-40 °F to 302 °F]): 3 Vdc to 24 Vdc	4 Vdc to 24 Vdc	3 Vdc to 18 Vdc, except SS361RT >125 °C [247 °F]: 3 Vdc to 12 Vdc	3.8 Vdc to 30 Vdc (inclusive)	4.5 Vdc to 24 Vdc
14 mA	5 mA max. at 25 °C [77 °F] (3 V) 6 mA max. at 25 °C [77 °F] (5 V)	6 mA max.	8 mA	SS400: 10 mA SS500: 8.7 mA at 5 Vdc	15 mA max.
digital sinking	digital sinking	digital sinking	digital sinking	digital sinking	digital sinking
-40 °C to 150 °C [-40 °F to 302 °F]	-40 °C to 150 °C [-40 °F to 302 °F]	-40 °C to 125 °C [-40 °F to 257 °F]	SS361RT (3 V to 12 V) & SS461R: 40 °C to 150 °C [-40 °F to 302 °F]; SS361RT (3 V to 18 V): -40 °C to 125 °C [-40 °F to 257 °F]	-40 °C to 150 °C [-40 °F to 302 °F]	-40 °C to 150 °C [-40 °F to 302 °F]
SS345PT: 2,8 mm x 2,9 mm [0.11 in x 0.11 in] SS445P: 3,0 mm x 4,1 mm [0.12 in x 0.16 in]	SS351AT: 2,8 mm x 2,9 mm [0.11 in x 0.11 in] SS451A: 3,0 mm x 4,1 mm [0.12 in x 0.16 in]	SS361CT: 2,8 mm x 2,9 mm [0.11 in x 0.11 in] SS461C: 3,0 mm x 4,1 mm [0.12 in x 0.16 in]	SS361RT: 2,8 mm x 2,9 mm [0.11 in x 0.11 in] SS461R: 3,0 mm x 4,1 mm [0.12 in x 0.16 in]	SS400: 3,0 mm x 4,1 mm [0.12 in x 0.16 in] SS500: 4,2 mm x 4,5 mm [0.16 in x 0.18 in]	SS41: 3,0 mm x 4,1 mm [0.12 in x 0.16 in] SS51T: 4,2 mm x 4,5 mm [0.16 in x 0.18 in]
simple activation from a North pole (SS345PT) or a South pole (SS445P); low voltage 2.7 Vdc capability; built-in pull-up resistor	omnipolar (responds to either a North or South pole); built-in reverse polarity protection; thermally balanced integrated circuit; typical operating point of 85 G at 25 °C [77 °F]	enhanced sensitivity; simple activation from a North pole (SS361CT) or a South pole (SS461C); wide operating voltage range; built-in reverse voltage capability	bipolar latching magnetics; enhanced sensitivity; low voltage; built-in reverse polarity protection; robust design	unipolar, bipolar, and bipolar latching; sinking output; multiple operate/ release points available	bipolar magnetics; sinking output; high output current; reverse polarity protection

Magnetic Sensors
Hall-Effect Digital Sensor ICs

Constructed from a thin sheet of conductive material, Hall-effect sensor ICs have output connections perpendicular to direction of current flow. Potential applications are many, including speed and RPM sensing, brushless dc motors, and fan/motor/robotics.

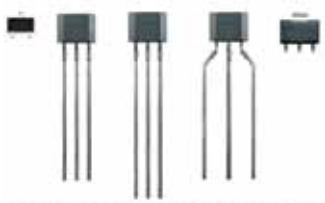
Series	SS421	SS42R
Description	adjustable bipolar Hall-effect digital sensor IC with underspeed detection	bipolar latching dual Hall-effect digital sensor IC with active high/active low complementary output
Magnetic actuation type	bipolar	bipolar latching
Package material and style	plastic radial lead	plastic radial lead
Supply voltage	4.5 Vdc to 16 Vdc	4.5 Vdc to 16 Vdc
Supply current	15 mA max.	11 mA max.
Output type	digital sinking	digital sinking or sourcing
Operating temperature range	-40 °C to 105 °C [-40 °F to 221 °F]	0 °C to 100 °C [32 °F to 212 °F]
Measurements (H x W)	3,6 mm x 5,1 mm [0.14 in x 0.20 in]	3,6 mm x 5,1 mm [0.14 in x 0.20 in]
Features	bipolar magnetics; sinking output; active high and active low versions; adjustable speed trip point	bipolar latching magnetics; sinking or sourcing outputs; reverse polarity protection

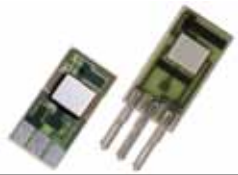
SS46	VF526DT
bipolar latching Hall-effect digital sensor IC	bipolar latching dual Hall-effect digital sensor IC with speed and direction outputs
bipolar latching	bipolar latching
plastic radial lead	plastic surface mount (SOT-89)
4.5 Vdc to 24 Vdc	3.4 Vdc to 24 Vdc
10 mA max.	14 mA max.
digital sinking	digital sinking
-40 °C to 150 °C [-40 °F to 302 °F]	-40 °C to 125 °C [-40 °F to 257 °F]
3,0 mm x 4,1 mm [0.12 in x 0.16 in]	4,2 mm x 4,5 mm [0.16 in x 0.18 in]
bipolar latching magnetics; sinking or sourcing output; high output current capability	bipolar latching magnetics; sinking output; tape and reel available

Magnetic Sensors
Hall-Effect Linear Sensor ICs

Constructed from a thin sheet of conductive material, Hall-effect sensors have output connections perpendicular to direction of current flow. Potential applications are many, including speed and RPM sensing, brushless dc motors, and fan/motor/robotics.

Series	91SS	SS490/SS491B
Description	Hall-effect linear sensor IC	Hall-effect linear sensor IC
Magnetic actuation type	linear	linear
Package material and style	ceramic SIP, ceramic with solder bumps	SS490: plastic radial lead, plastic surface pack, ammopack styles T2 and T3; SS491B: plastic radial lead
Supply voltage	8 Vdc to 16 Vdc	4.5 Vdc to 10.5 Vdc
Supply current	19 mA max.	10 mA
Output type	ratiometric sourcing	ratiometric sinking or sourcing
Operating temp. range	-40 °C to 150 °C [-40 °F to 302 °F]	-40 °C to 150 °C [-40 °F to 302 °F]
Measurements (H x W)	15,2 mm x 7,6 mm [0.60 in x 0.30 in]	3,0 mm x 4,1 mm [0.12 in x 0.16 in]
Features	linear magnetics; ratiometric sourcing output; positive temperature coefficient; different styles	linear magnetics; ratiometric sourcing output; positive temperature coefficient; different styles





SS39ET/SS49E/SS59ET	SS94
Hall-effect linear sensor IC	Hall-effect linear sensor IC
linear	linear
SS39ET: plastic surface mount (SOT-23) SS49E: plastic radial lead (flat SOT-92-style), straight or formed SS59ET: plastic surface mount (SOT-89)	ceramic SIP, ceramic with solder bumps
2.7 Vdc to 6.5 Vdc	4.5 Vdc to 12.6 Vdc
10 mA max.	30 mA max.
ratiometric sourcing	ratiometric sinking or sourcing
-40 °C to 100 °C [-40 °F to 212 °F]	-40 °C to 150 °C [-40 °F to 302 °F]
SS39ET: 2,8 mm x 2,9 mm [0.110 in x 0.114 in] SS49E: 3,0 mm x 4,1 mm [0.12 in x 0.16 in] SS59ET: 4,2 mm x 4,5 mm [0.16 in x 0.18 in]	15,2 mm x 7,6 mm [0.60 in x 0.30 in]
linear magnetics; ratiometric sourcing output; low voltage operation; tape and reel available	linear magnetics; ratiometric sourcing output; standard mounting centers; linearity ±1.5 % max.

Magnetic Sensors
Value-Added Hall-Effect Sensors

Consists of sensors packaged in a variety of housings. Includes vane sensors, digital position sensors, and solid-state switches. Potential applications include position and RPM sensing, cam and crankshaft speed and position, transmissions, tachometers, traction control, and sprocket speed.

Series	103SR (digital)	103SR (linear)	1GT
Description	Hall-effect digital position sensor	Hall-effect linear position sensor	Hall-effect sensor
Package material and style	aluminum threaded barrel	aluminum threaded barrel	plastic probe
Magnetic actuation type	unipolar, bipolar, bipolar latching	linear	–
Operation	proximity to external magnet	proximity to external magnet	ferrous metal actuator
Supply voltage range	4.5 Vdc to 24 Vdc	4.5 Vdc to 10.5 Vdc	4.5 Vdc to 26.5 Vdc (inclusive)
Supply current	4 mA to 10 mA (inclusive)	7 mA	20 mA max.
Output type	digital sinking or sourcing (depends on listing)	ratiometric sinking/sourcing	digital sinking
Operating temperature range	-40 °C to 100 °C [-40 °F to 212 °F]	-40 °C to 100 °C [-40 °F to 212 °F]	-40 °C to 150 °C [-40 °F to 302 °F]
Measurements	Ø 11,9 mm x 25,4 mm H [15/32-2 x 1.0 in H]	Ø 11,9 x 25,4 mm H [15/32-2 x 1.0 in H]	Ø 17,9 mm x 31,8 mm L [Ø 0.70 in x 1.25 in L]
Features	unipolar, bipolar, and bipolar latch magnetics; sinking or sourcing output; aluminum housing; color-coded jacketed cable; adjustable mounting	linear magnetics; ratiometric sinking/sourcing output; aluminum housing; color-coded jacketed cable; adjustable mounting	sinking output; fast operating speed; reverse polarity and transient protection; EMI resistant





4AV	SR16/SR17	SR3	SR4	VX10/VX80
Hall-effect vane sensor	low-cost Hall-effect vane sensor	Hall-effect digital position sensor	magnetoresistive digital position sensor	Hall-effect solid state switch
plastic dual tower wire exit plastic dual tower with connector	SR16: plastic dual tower with variety of terminations SR17: plastic side-mount wire exit	plastic threaded barrel	plastic threaded barrel	plunger actuated non-contact switch
–	–	unipolar, bipolar	omnipolar	–
ferrous metal actuator	ferrous metal actuator	proximity to external magnet	proximity to external magnet	plunger actuator
4.5 Vdc to 24 Vdc	3.8 Vdc to 30 Vdc	4.5 Vdc to 24 Vdc	3.8 Vdc to 30 Vdc	4 Vdc to 24 Vdc
18.5 mA max.	10 mA max.	10 mA	11 mA	15 mA
digital sinking	digital sinking	digital sinking	digital sinking	digital sinking
-40 °C to 125 °C [-40 °F to 257 °F]	-20 °C to 85 °C [-4 °F to 185 °F]	-40 °C to 85 °C [-40 °F to 185 °F]	-40 °C to 85 °C [-40 °F to 185 °F]	-40 °C to 75 °C [-40 °F to 167 °F]
19,1 mm H x 10,4 mm W [0.75 in H x 0.41 in W]	24,6 mm H x 12,4 mm W [0.97 in H x 0.49 in W]	Ø 12,4 mm x 25,4 mm L [Ø 0.49 in x 1.0 in L]	19,0 mm H x 25,4 mm L [0.75 in H x 1.0 in L]	15,8 mm H x 28,83 mm L [0.62 in H x 1.135 in L]
sinking output; zero speed capability; on and off times programmable	sinking output; non-contact position sensing; environmentally sealed; three terminations	NEMA 3, 3R, 3S, 4, 4X, 12 and 13; unipolar and bipolar magnetics; sinking output; frequencies exceeding 100 Hz	NEMA 3, 3R, 3S, 4, 4X, 12 and 13; omnipolar magnetics; sinking output	UL/CSA; sinking output; non-contact, low-force operation; reverse voltage protection; standard levers and actuators available

Magnetic Sensors
Speed and Direction Sensors

Provides true zero speed capability, direction sensing, and precise switch point measurement. Speed sensor diagnostics provide information on air gap and sensor failure for increased reliability and functionality. Potential applications include cam/crank shafts, transmissions, tachometers, traction control, dynamometers, process control, and factory automation.

Series	1GT	LCZ	ZH10
Description	single Hall-effect sensor	single Hall-effect zero speed sensor	single Hall-effect zero speed sensor
Housing	plastic probe	stainless steel	aluminum
Supply voltage range	4.5 Vdc to 26.5 Vdc (inclusive)	4.5 Vdc to 26 Vdc	4 Vdc to 24 Vdc
Supply current	20 mA	20 mA	6 mA
Output type	digital sinking (open collector)	digital sinking	digital sinking
Operating frequency range	0 Hz to 25 kHz (inclusive)	0 Hz to 15 kHz	0 Hz to 15 kHz
Operating temperature range	-40 °C to 150 °C [-40 °F to 302 °F]	-40 °C to 125 °C [-40 °F to 257 °F]	-40 °C to 125 °C [-40 °F to 257 °F]
Measurements	Ø 17,9 mm x 31,8 mm L [Ø 0.70 in x 1.25 in L]	9,5 mm [3/8 in/0.375 in] and 15,9 mm [5/8 in/0.625 in] diameters; 50,8 mm [2.00 in] and 76,2 mm [3.00 in] lengths	Ø 11,9 mm [15/32 in/0.46875 in] x 25,4 mm [1.00 in] L
Features	fast operating speed; reverse polarity and transient protection; EMI resistant	omni-directional sensor to target; low power consumption; zero speed; digital output	omni-directional sensor to target; low power consumption; zero speed; digital output

SNDH-T	SNDH-H	GTN	SNDJ
dual differential Hall-effect quadrature speed and direction sensor	Hall-effect speed sensor	single Hall-effect sensor	zero speed Hall-effect sensor, differential Hall-effect sensor, dual Hall-effect sensor
stainless steel, plastic	stainless steel, plastic	plastic probe	stainless steel
4.5 Vdc to 18 Vdc	4 Vdc to 24 Vdc, 4.5 Vdc to 24 Vdc, 6.5 Vdc to 24 Vdc	8 Vdc to 32 Vdc (inclusive)	8 Vdc to 32 Vdc (inclusive)
18 mA max.	6 mA max., 14 mA max., 20 mA max.	40 mA	10 mA to 20 mA max. (inclusive)
square wave	digital sinking	digital sinking (open collector)	square wave and one direction signal; square wave signal from NPN output transistor with 2.7 kOhm pull-up; dc-coupled to supply; square wave signal from push-pull stage; dc-coupled to supply
1 Hz to 15 kHz	0 Hz to 12 kHz, 0 Hz to 15 kHz, 2 Hz to 15 kHz	2 Hz to 9 kHz	0 Hz to 15 kHz (inclusive)
-40 °C to 150 °C [-40 °F to 302 °F]	-40 °C to 150 °C [-40 °F to 302 °F] inclusive	-40 °C to 125 °C [-40 °F to 257 °F]	-20 °C to 100 °C [-4 °F to 212 °F]
Ø 15 mm x 45 mm L [Ø 0.6 in x 1.77 in L]	various, depends upon type	Ø 20 mm x probe length (varies) [Ø 0.77 in x probe length (varies)]	Ø 12 mm x 58,7mm L [Ø 0.47 in x 2.31 in L]
advanced performance dynamic offset self calibration; short circuit and reverse voltage protection; low jitter output; near zero speed	rotationally insensitive versions available; zero speed sensing versions available; range of connector options	choice of barrel lengths; integrated electronic diagnostics; enhanced operating speed	backbiased Hall-effect; direct sensing of ferrous metal target; zero speed sensing; rotational orientation independent of sensor

Magnetic Sensors
Variable Reluctance and Digital Magnetic Speed Sen

Variable Reluctance Sensors and Building Blocks *deliver direct conversion of actuator speed to output frequency. Potential applications include engine and motor RPM, process, flow, wheel-slip, and gear-speed measurement.* ***Digital Magnetic VRS Speed Sensors*** *potential industrial applications include computing, high-speed counting, positioning, tachometry, synchronization, routing, flow metering, and machine control. Potential transportation applications include engine, motor, or pump RPM sensing, over/under speed sensing, and wheel speed detection.*

Variable Reluctance Speed Sensors	VRS General Purpose	VRS Hazardous Location
Output voltage range	8 Vp-p to 40 Vp-p (inclusive)	30 Vp-p to 60 Vp-p (inclusive)
Housing diameter	5/8 in, 3/8 in, 1/4 in, 10/32 in	3/4 in, 5/8 in
Housing material/style	stainless steel threaded or smooth	stainless steel threaded
Termination	MS3106 connector, preleaded	MS3106 connector, preleaded
Operating temperature range	-55 °C to 120 °C [-67 °F to 250 °F] (inclusive)	-73 °C to 120 °C [-100 °F to 250 °F] (inclusive)
Features	self-powered operation; simple installation; no moving parts; operates over wide speed range; customized versions available	self-powered operation; simple installation; no moving parts; operates over wide speed range; customized versions available

Variable Reluctance Speed Sensors	584 Series 584XXHV High Voltage	584 Series 584XXLV Low Voltage
Housing diameter	5/8	3/8, 5/8
Supply voltage	10 Vdc to 30 Vdc @ 15 mA max.	5 Vdc to 15 Vdc @ 15 mA max.
Output signal: square wave (low)	350 mV max. @ 20 mA max. current sink	350 mV max. @ 20 mA max. current sink
Housing material/style	300 stainless steel/threaded	400 stainless steel/threaded
Termination	MS3106A-10SL-3S or preleaded	MS3106A-10SL-3S (5/8 only) or preleaded
Vibration	meets MIL-STD 202F, method 204D	meets MIL-STD 202F, method 204D
Operating temp. range	-40 °C to 107 °C [-40 °F to 225 °F]	-40 °C to 107 °C [-40 °F to 225 °F]
Features	senses moving ferrous metal, output signal of integrated circuit allows for direct use in digital equipment; eliminates the need for interface circuitry, reducing installation and maintenance costs; enhanced stability due to precisely matched components; extremely precise relationship between the physical position of any sensed object and the electrical signal produced provides improved accuracy to timing and positioning applications; enhanced sensitivity with the capability to produce full output of 5 V to 30 V at speeds as low as 3 in/second at gaps of 0.050 in, or 1 in/second at gaps of 0.005 in; constant output amplitude independent of speed, and air gap (within sensing range) allows for full output at almost zero speeds	

VRS High Output	VRS High Resolution	VRS High Temperature	VRS Power Output
8 Vp-p to 190 Vp-p (inclusive)	17 Vp-p to 170 Vp-p	4.7 Vp-p to 125 Vp-p (inclusive)	70 Vp-p (inclusive)
5/8 in, 3/8 in	5/8 in, 3/8 in	5/8 in, 3/8 in, 1/4 in	5/8 in
stainless steel threaded or smooth	stainless steel threaded	stainless steel threaded	stainless steel threaded
MS3106 connector, preleaded	MS3106 connector, preleaded	MS3106 connector, preleaded	MS3106 connector, preleaded
-55 °C to 150 °C [-67 °F to 300 °F] (inclusive)	-55 °C to 120 °C [-67 °F to 250 °F]	-73 °C to 230 °C [-100 °F to 450 °F] (inclusive)	-55 °C to 120 °C [-67 °F to 250 °F]
self-powered operation; simple installation; no moving parts; operates over wide speed range; customized versions available	self-powered operation; simple installation; no moving parts; operates over wide speed range; customized versions available	self-powered operation; simple installation; no moving parts; operates over wide speed range; customized versions available	self-powered operation; simple installation; no moving parts; operates over wide speed range; customized versions available

Honeywell Sensing and Control 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, silicon 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, silicon and stainless steel media isolated pressure sensors, force sensors, safety light curtains, push-pull switches, and MICRO SWITCH™ snap-action 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.

Sensing and Control Product Portfolio

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

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 Sensing and Control has one of the broadest sensing and switching portfolios available.

SENSORS

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, and ventilation equipment.

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, and wattmeters.

Flexible heaters: Flat, molded-to-shape, spiral wrap, transparent, composite, and high temperature configurations with single, multiple, and variable watt densities. Can be bonded parts or combined. **May be used in:** Airborne valves, outdoor cameras, LCD displays, scanners, and telecommunication.

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, and kidney dialysis machines.

Humidity sensors: Configured with integrated circuitry. Provide on-chip signal conditioning with interchangeability of ±3 % accuracy and out-of-the-box reliability. Standardized, platform-based sensors. **May be used in:** Air compressors, food and beverage packaging and processing, HVAC, printing presses, and office equipment.

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, and non-invasive medical equipment.

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, and weight sensing.

Position sensors: The **SMART position sensor** measures linear or angular 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, 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, and 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, and diameter control.

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, and transmissions.

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, and industrial automation.

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; and transportation (heavy equipment and alternative fuel vehicles) system, pneumatics, and hydraulics.

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, and door/hatch monitoring.

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, and aerospace.

Speed sensors: Measure speed, position, and presence detection utilizing magnetoresistive, variable reluctance, Hall-effect, variable inductance, and Spiral technologies. **May be used in:** Cam and crankshafts, transmissions, fans, pumps, mixers, rollers, and motors.

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, thermal management, and temperature compensation.

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, and HVAC equipment.

ELECTROMECHANICAL SWITCHES

MICRO SWITCH™ snap-action series: Snap-action precision switches. Compact. Lightweight. Designed for repeatability and enhanced life. Premium and standard snap-action switches: standard, miniature, subminiature, hermetically sealed, and high-temperature versions. **May be used in:** Vending machines, communication equipment, HVAC, appliances, electronic gaming machinery, valve controls, irrigation systems, foot switches, pressure, and temperature controls.

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, and hazardous waste handling facilities.

Key and rotary switches: Used on machinery in harsh environments. 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.

MICRO SWITCH ™ limit switches: Broadest and deepest limit switch portfolio. Rugged, dependable position detection solutions. MICRO SWITCH™ heavy-duty limit switches (HDLS) and global limit switches. Hermetically and environmentally sealed switches. **May be used in:** Machine tools, woodworking, textile, and printing machinery, metal fabrication, balers/compactors, forklifts, bridges, robotics, wind turbines, elevators, moving stairs, doors, dock locks/levelers, aerial lifts, cranes, conveyors, rail, shipboards, and dock side.

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, and underwater.

MICRO SWITCH™ pushbutton switches: Lighted or unlighted. 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, computers, medical instrumentation, and aerospace.

MICRO SWITCH™ rocker switches: Wide range of electrical and display design. Many shapes, sizes, 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, and commercial aviation.

MICRO SWITCH™ toggle switches: Wide range of electrical and display design. 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, and military/commercial aviation.

MICRO SWITCH™ aerospace-grade pressure switches: lightweight, compact pressure switches sense changes in gas/pressure. Qualified to MIL-PFR-8805. Lower operating force provides application versatility with enhanced precision. Design modularity allows for configuration of the switch, facilitating rapid customization to the precise, demanding requirements. **May be used in**: aerospace systems -including engines, fuel pressure, and hydraulic systems, military ground vehicles, ordnance and munitions release systems, military maritime systems.

Pressure and vacuum switches: Feature set points from 0.5 psi to 3000 psi. Rugged components have enhanced repeatability, flexibility, and wide media capability. **May be used in:** Transmissions, hydraulics, brakes, steering, generators/compressors, dental air, embalming equipment, oxygen concentrators, air cleaners, fuel filters, and pool water pressure.

WIRELESS SWITCHES

Limitless™ Series: Combines the best of MICRO SWITCH™ limit switches with latest 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. **May be used in:** valve position, crane boom/jib/skew position, lifts, material handling, presses, construction/ag machines, conveyors, remote/temporary equipment, grain diverters or flaps, and door position.

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, bailers, compactors, aircraft bridges, telescopic handlers, refuse vehicles.

Safety light curtains: Different resolutions permit detection of an approaching finger, hand, limb, or body. Separate or self-contained control units, various housing sizes, resolutions, scanning ranges, and protection heights. **May be used in:** Point-of-operation protection, access detection, presence sensing, gate monitoring, electrical-to-machine-circuitry interfacing, emergency stop circuits on machines, sliding door protection, conveyors, and transfer lines.

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 control products, call **+1-815-235-6847**, email inquiries to **info.sc@honeywell.com**, or visit **www.honeywell.com/sensing**

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