



**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 basic, 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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# MICRO SWITCH™ Limit Switches

## Heavy-Duty Limit Switches



Offer a rugged, die-cast body with multiple mounting and actuator options. Low- and high-temp construction and factory-sealed, pre-wired versions available. Potential applications include food and beverage, construction and agriculture equipment, material handling, rail, industrial valves, chemical and food processing, shipboard, caustic waste handling, and power generation.



HDLS Series	Standard	316L Stainless Steel	Fully Potted
<b>Housing type</b>	HDLS plug-in and non-plug-in	316L stainless steel non plug-in	sealed HDLS body
<b>Sealing</b>	IP65/66/67; NEMA 1, 3, 4, 4X, 6, 6P, 12, 13	IP65/66/67; NEMA 1, 3, 3R, 4, 4X, 6, 6P, 12, 13	IP65/66/67; NEMA 1, 3, 4, 6, 6P, 12, 13
<b>Temperature range (standard)</b>	-12 °C to 93 °C [10 °F to 200 °F]	-12 °C to 121 °C [10 °F to 250 °F]	-12 °C to 121 °C [10 °F to 250 °F]
<b>Low temperature range (optional)</b>	-40 °C to 121 °C [-40 °F to 250 °F]	-40 °C to 121 °C [-40 °F to 250 °F]	-40 °C to 121 °C [-40 °F to 250 °F]
<b>Housing material</b>	zinc die-cast	stainless steel	zinc die-cast
<b>Actuators/levers</b>	top plunger, top roller, top rotary, side rotary, side plunger, side rotary, wobble	top plunger, top roller, top rotary, side rotary, side plunger, side rotary, wobble	top plunger, top roller, top rotary, side rotary, side plunger, side rotary, wobble
<b>Termination</b>	0.5 in/0.75 in - 14NPT conduit; 20 mm conduit; PG13.5; 12 ft cable; 4, 5, and 9-pin mini-connector	0.5 in/0.75 in - 14NPT conduit; 20 mm conduit; PG13.5; 12 ft cable; 4, 5, and 9-pin mini-connector	cable (various lengths); 4-pin; 5-pin; 9-pin; 20-pin mini-connector
<b>Approvals</b>	UL, CE, CSA, CCC, EN60947-1, EN60947-5-1	UL, CE, CSA, CCC, EN60947-1, EN60947-5-1	UL, CE, CSA, CCC, EN60947-1, EN60947-5-1
<b>Circuitry</b>	1NC 1NO SPDT, 1NC direct acting, 2NC 2NO DPDT, 2NC 2NO DPDT sequential, 2NC 2NO DPDT center neutral	1NC 1NO SPDT, 1NC direct acting, 2NC 2NO DPDT, 2NC 2NO DPDT center neutral	1NC 1NO SPDT, 2NC 2NO DPDT, 2NC 2NO DPDT center neutral
<b>Contacts</b>	silver, gold	silver, gold	silver, gold
<b>Amp rating</b>	10 A (thermal)	10 A (thermal)	10 A (thermal)
<b>Measurements (H x W x D)</b>	106,7 mm x 29,4 mm x 44,4 mm [4.20 in x 1.16 in x 1.75 in]	122,9 mm x 29,5 mm x 45,2 mm [4.84 in x 1.16 in x 1.78 in]	106,7 mm x 29,4 mm x 44,4 mm [4.20 in x 1.16 in x 1.75 in]
<b>Features</b>	wide variety of actuators, circuitry options, and connectivity; rugged and dependable, models in service for over 40 years	series 316L 300 stainless steel housing suitable for corrosive environment and wash down food and beverage applications	construction guards against fluid penetration into switch body; suitable for harsh-duty applications

# MICRO SWITCH™ Limit Switches

## Global Limit Switches



Meet IEC standards for world-wide acceptance – often used in injection molding, PLC interface, machine tooling, escalators, packaging, food and beverage, industrial, lifts and elevators, electronic assembly, construction and agriculture equipment, material handling, and rail.



Series	GLA	GLC
Housing type	EN 50041	EN 50047
Sealing	IP67; NEMA 1, 3, 4, 12, 13	IP66/IP67; NEMA 1, 4, 12, 13
Temperature range	-25 °C to 85 °C [-13 °F to 185 °F] side rotary: -40 °C to 85 °C [-40 °F to 185 °F]	-40 °C to 85 °C [-40 °F to 185 °F]
Housing material	zinc die-cast	zinc die-cast
Actuators/levers	side rotary, top plunger, top roller lever, roller plunger, wobble	side rotary, top plunger, top roller lever, roller plunger, wobble
Termination	0.5 in - 14NPT conduit, 20 mm, PG13.5	0.5 in - 14NPT conduit, 20 mm, PG13.5
Approvals	UL, CE, CSA, CCC, IEC 947-5-1, EN60947-5-1, UL508	UL, CE, CSA, CCC, IEC 947-5-1, EN60947-5-1, UL508
Circuitry	SPDT snap action DB, SPDT slow action BBM/MBB, DPDT snap action DB, DPDT sequential, DPDT center neutral, 2NO and 2NC	SPDT snap action DB, SPDT slow action BBM/MBB, 1NC/1NO, 2NC/2NO
Contacts	silver, gold	silver, gold
Amp rating	10 A (thermal)	10 A (thermal)
Measurements (H x W x D)	82,0 mm x 42,0 mm x 42,0 mm [3.23 in x 1.65 in x 1.65 in]	55 mm x 30,5 mm x 30 mm [2.16 in x 1.20 in x 1.18 in]
Features	positive-opening NC contacts ➡	positive-opening NC contacts ➡



GLD	GLE	91MCE	SZL-VL
EN 50047	EN 50047 compatible	—	—
IP66/IP67; NEMA 1, 12, 13	IP66; NEMA 1, 4, 12, 13	IP67; NEMA 1, 4, 12, 13	IP64
-40 °C to 85 °C [-40 °F to 185 °F]	-40 °C to 85 °C [-40 °F to 185 °F]	-25 °C to 85 °C [-13 °F to 185 °F]	-20 °C to 60 °C [-4 °F to 140 °F]
high-strength thermoplastic	zinc die-cast	zinc die-cast	zinc die-cast/plastic
side rotary, top plunger, top roller, wobble	side rotary, top plunger, top roller, wobble	side rotary, top plunger, roller plunger, bushing-mount actuators	side rotary, top plunger, roller plunger, wobble, wobble cat whisker
0.5 in - 14NPT conduit, 20 mm, PG13.5	0.5 in - 14NPT conduit, 20 mm, PG13.5	4-pin M12 connector, side exit cable, bottom exit cable	cable gland
UL, CE, CSA, CCC, IEC 947-5-1, EN60947-5-1, UL508, UL746-C	UL, CE, CSA, CCC, IEC 947-5-1, EN60947-5-1, UL508	cULus, CE, CCC	UL, cULus, CE, CCC
SPDT snap action DB, SPDT slow action BBM/MBB, 1NC/1NO, 2NC/2NO	SPDT snap action DB, SPDT slow action BBM/MBB, DPDT snap action DB, 2NO and 2NC	1NO 1NC DO snap action, 1NC 1NO slow action: BBM	1NC 1NO SPDT double break
silver, gold	silver, gold	silver	gold-plated silver
10 A (thermal)	10 A (thermal)	10 A (thermal)	5.0 A
55 mm x 30,5 mm x 30 mm [2.16 in x 1.20 in x 1.18 in]	50 mm x 65 mm x 30 mm [2.37 in x 2.56 in x 1.18 in]	59,8 mm x 30 mm x 16 mm [2.35 in x 1.18 in x 0.63 in]	64 mm x 28 mm x 38.1 mm [2.52 in x 1.102 in x 1.5 in]
positive-opening NC contacts ➡	positive-opening NC contacts ➡	positive-opening NC contacts; ➡ side and bottom exit connection options	integral cord grip; gold-plated silver contacts

# MICRO SWITCH™ Limit Switches

## Medium-Duty Limit Switches



Featuring a small metal package size. Potential applications include material handling, printing, machine tools, agricultural equipment, cranes, packaging, earth moving, conveyors, surtran, textile, and printing.



Series	14CE/914CE	LS
Housing type	–	compact/non-plug-in, plug-in
Sealing	IP65, IP66, IP67; NEMA 1, 3, 4, 6, 6P, 12, 13	NEMA 1, 3, 4, 6, 13
Temperature range	0 °C to 70 °C [35 °F to 160 °F] -40 °C [-40 °F] low temp (optional)	-29 °C to 71 °C [-20 °F to 160 °F]
Housing material	zinc die-cast	zinc die-cast
Actuators/levers	side rotary, top plunger, roller plunger, pushbutton, wobble	side rotary, top plunger, top roller plunger, side plunger, side roller, wobble
Termination	cable, micro-connector	0.5 in - 14NPT conduit, mini-connector
Approvals	14CE: CE, IEC947-5-1, EN60947-5-1 914CE: UL, CE, CSA, IEC947-5-1, EN60947-5-1	UL, CSA (select listings)
Circuitry	SPDT	SPDT double break, DPDT double break
Contacts	silver, gold	silver
Amp rating	5 A (thermal)	10 A
Measurements (H x W x D)	49 mm x 40 mm x 16 mm [1.93 in x 1.58 in x 0.63 in]	102,9 mm x 30,2 mm x 28,7 mm [4.05 in x 1.19 in x 1.13 in]
Features	rugged housing; miniature size; pre-leaded or various quick-connect terminations; low-temperature available	mode of operation is field adjustable; variety of operating characteristics; models in service for more than 60 years



## E6/V6

split housing, side mount; split housing, flange mount

E6/V6-RQ: IP40; NEMA 1  
E6/V6-RN: IP66; NEMA 1, 3, 4

-32 °C to 71 °C [-25 °F to 160 °F]  
-40 °C [-40 °F] low temp (optional)

zinc die-cast

top plunger, maint. with reset plunger, wobble, lever actuated

0.5 in - 14NPT (or NPSM) conduit, mini-connector, cable

UL, CSA

SPDT, DPDT

silver, gold

10 A, 15 A, 22 A

63,5 mm x 25,4 mm x 77,2 mm]  
[2.50 in x 1.00 in x 3.04 in]

rugged electrostatic, epoxy-coated housing; booted versions sealed to IP66;  
unsealed actuators sealed to IP40; side or flange mount; low temperature options;  
hermetic seal optional; models in service for more than 60 years



## SL1

—

IP67; NEMA 3, 4, 13

-10 °C to 70 °C [14 °F to 160 °F]

zinc die-cast

top plunger, roller arm

cable gland

UL, CSA

SPDT

silver, gold

5 A

59,8 mm x 44,2 mm x 18 mm  
[2.35 in x 1.74 in x 0.71 in]

often ideal source for replacement parts for machine tools; rugged housing;  
snap-in terminal enclosures; standard and low temperature ranges

# MICRO SWITCH™ Hazardous Area Switches

## Hazardous Area Switches



*Designed to extinguish the flame path in a potentially explosive environment, MICRO SWITCH™ hazardous area switches are weatherproof, water-tight, and dust-tight. These highly reliable, rugged switches are often used in control valves, petrochemical, conveyors, grain elevators, and material handling.*



<b>Series</b>	<b>EX</b>
<b>Approvals</b>	UL, CSA, ATEX (CE), IEC Ex
<b>Designations</b>	Div. 1 & 2, Class I, Groups B, C, & D Div. 1 & 2, Class II, Groups E, F, & G II 2 G; EEx d IIB + H2 T6
<b>Sealing</b>	NEMA 1, 7, 9
<b>Housing material</b>	aluminum
<b>Actuators/levers</b>	side rotary, top plunger, top roller plunger, manual
<b>Termination</b>	0.5 in - 14NPT conduit, lead wires
<b>Circuitry</b>	1NC 1NO SPDT snap action; 1NC 1NO SPDT maintained; 2NC 2NO DPDT snap action
<b>Operating temperature (standard)</b>	-40 °C to 71 °C [-40 °F to 160 °F]
<b>Amp rating</b>	1 A, 10 A, 15 A, 20 A
<b>Measurements (H x W x D)</b>	65,0 mm x 70,6 mm x 51,3 mm [2.56 in x 2.78 in x 2.02 in]
<b>Features</b>	smallest housing used only in indoor applications; ample wiring space; mounts from any of four sides; used in temperature range of -40 °C to 71 °C [-40 °F to 160 °F]; global agency approvals





<b>GXE</b>	<b>14CE100</b>	<b>CX</b>
ATEX (CE), IEC Ex	ATEX (CE)	UL, CSA, ATEX (CE), IEC Ex (consult factory for applicable listings)
II 2 G; EEx d IIC T6 II 2 D; Ex tD A21 T85°C	II 2 G; Ex d IIC T6 II 2 D; Ex tD A21 T85°C	Div. 1 & 2, Class I, Groups B, C, & D Div. 1 & 2, Class II, Groups E, F, & G II 2 G; Ex d IIC T6 II 2 D; Ex d tD A21 T85°C
IP66/67	IP65, IP66, IP66/67	IP66; NEMA 1, 3, 4, 4X, 6, 6P, 7, 9, 13
zinc	zinc	aluminum, bronze
side rotary, top plunger, top roller	top plunger, roller plunger, cross-roller	side rotary, plunger only
5 m cable	cable (various lengths)	0.75 in - 14 NPT conduit, 25 mm conduit
1NC 1NO SPDT snap action	1NC 1NO SPDT snap action	1NC 1NO SPDT; 2NC 2NO DPDT; 4 mA to 20 mA; analog output: 4NC 4NO
-20 °C to 75 °C [-4 °F to 167 °F]	0 °C to 70 °C [32 °F to 158 °F]	-25 °C to 85 °C [-13 °F to 185 °F]
5 A (thermal)	1 A (thermal), 5 A (thermal)	1 A, 10 A, 15 A, 20 A
91,0 mm x 45 mm x 24,7 mm [3.58 in x 1.77 in x 0.97 in]	49,0 mm x 40,0 mm x 16,0 mm [1.93 in x 1.57 in x 0.63 in]	short: 101,6 mm x 101,6 mm x 104 mm [4.00 in x 4.00 in x 4.09 in] standard: 101,6 mm x 101,6 mm x 145,0 mm [4.00 in x 4.00 in x 5.71 in]
EN 50047 mounting compatible; double-insulated switch element; snap-action basic switch; A-P and European approvals	pre-wired or connector versions; gang-mounting capability; cable length variations; simple two screw mounting; A-P and European approvals	rotary models convert in seconds; low temp seals; available models for on/off position switching or continuous analog output sensing; single or double pole, double-throw available; global agency approvals

# MICRO SWITCH™ Hazardous Area Switches

## Hazardous Area Switches





Designed to extinguish the flame path in a potentially explosive environment, MICRO SWITCH™ hazardous area switches are weatherproof, water-tight, and dust-tight. These highly reliable, rugged switches are often used in control valves, petrochemical, conveyors, grain elevators, and material handling.



Series	LSX	BX
Approvals	UL, CSA	BX (1/2 NPT or 3/4 NPT): UL, CSA, ATEX, IEC Ex, NEPSI BX (20 mm): ATEX, IEC Ex, NEPSI
Designations	Div. 1 & 2, Class I, Groups B, C, & D Div. 1 & 2, Class II, Groups E, F, & G	Div. 1 & 2, Class I, Groups B, C, & D Div. 1 & 2, Class II, Groups E, F, & G II 2 G; Ex d IIC T6 II 2 D; Ex d tD A21 T85°C
Sealing	IP67; NEMA 1, 3, 4, 6, 13	BX: IP67; NEMA 1, 3, 4, 6, 13 BX (1/2-14 NPT, 3/4-NPT): IP67; NEMA 1, 3, 4, 6, 7, 9, 13
Housing material	aluminum	aluminum
Actuators/levers	side rotary, side plunger, side roller, top rotary, top plunger, top roller plunger, wobble	side rotary, side plunger, side roller, top rotary, top plunger, top roller plunger, wobble
Termination	0.5 in - 14NPT conduit, 0.75 in - 14NPT conduit, 20 mm conduit	0.5 in - 14NPT conduit, 0.75 in - 14NPT conduit, 20 mm conduit
Circuitry	1NC 1NO SPDT DB snap action; 2NC 2NO DPDT DB snap action	1NC 1NO SPDT DB snap action; 2NC 2NO DPDT DB snap action
Operating temperature	-12 °C to 121 °C [10 °F to 250 °F]	-40 °C to 70 °C [-40 °F to 158 °F]
Amp rating	0.05 A, 10 A (thermal)	0.05 A, 10 A (thermal)
Measurements (H x W x D)	146,1 mm x 50,8 mm x 62,0 mm] [5.75 in x 2.00 in x 2.44 in]	146,1 mm x 50,8 mm x 62,0 mm] [5.75 in x 2.00 in x 2.44 in]
Features	10 A continuous carry electrical rating; variety of actuators and circuitry options; silver or gold contacts; field adjustable to meet various application needs	diverse conduit selection; compatible with LSX; tracking interchangeability with MICRO SWITCH™ ML-E1 and HDLS; variety of heads and non-sparking actuators; 10 A continuous carry electrical current; silver or gold contacts; ATEX-required internal mounting screw; global agency approvals



BX2	GSX	CLSX
BX2 (1/2 NPT, 3/4 NPT, 20 mm): UL, cUL, ATEX, IEC Ex, NEPSI	cULus, ATEX, IEC Ex	UL, CSA
Div. 1 & 2, Class I, Groups B, C, & D Div. 1 & 2, Class II, Groups E, F, & G II 2 G; Ex d IIC T6 II 2 D; Ex d tD A21 T85°C	Div. 1 & 2, Class I, Groups B, C, & D Div. 1 & 2, Class II, Groups E, F, & G II 2 G; Ex d IIC T6 II 2 D; Ex d tD A21 T85°C	Div. 1 & 2, Class I, Groups B, C, & D Div. 1 & 2, Class II, Groups E, F, & G
IP67; NEMA 1, 3, 4, 6, 7, 9, 13	IP67; NEMA 1, 4, 6, 7, 9, 12, 13	NEMA 1, 3, 4, 7, 9, 13
stainless steel	aluminum	aluminum
side rotary, top plunger, top roller plunger	side rotary, pin plunger, top roller plunger, top roller lever	lever, maintained
0.5 in - 14NPT conduit, 0.75 in - 14NPT conduit, 20 mm conduit	0.5 in - 14NPT conduit, 20 mm conduit	0.5 in - 14NPT conduit, 20 mm conduit
1NC 1NO SPDT DB snap action; 2NC 2NO DPDT DB snap action	SPDT; SPDT BBM; SPDT MBB; SPDT slow acting; DPDT; DPDT BBM; DPDT MBB; DPDT slow acting	1NC direct acting; 1NO 1NO direct acting
-40 °C to 70 °C [-40 °F to 158 °F]	-40 °C to 70 °C [-40 °F to 158 °F]	-1 °C to 70 °C [-30 °F to 158 °F]
0.05 A, 10 A (thermal)	10 A (thermal)	10 A (thermal)
146,1 mm x 50,8 mm x 62,0 mm] [5.75 in x 2.00 in x 2.44 in]	154,2 mm x 44,5 mm x 72 mm [6.07 in x 1.75 in x 2.84 in]	128,7 mm x 50,8 mm x 73,2 mm [5.07 in x 2.00 in x 2.88 in]
corrosion-resistant stainless steel housing; diverse conduit selection; tracking interchangeability with MICRO SWITCH™ LSX and BX series products; variety of heads and non-sparking actuators; 10 A continuous carry electrical current; silver or gold contacts; ATEX-required internal mounting screw; global agency approvals	snap-action contacts with positive break; simple installation; positive action push plunger; global agency approvals 	positive-opening operating of NC contacts; cable length may be 200 ft in straight line; internal grounding screw 

# Limitless™ Components

## Wireless Limit Switches and Monitors



New alternative enables designers to work without limitations of traditional tethered devices. Enables presence, absence, or position in applications where wired products are not feasible due to functionality and/or cost. Potential applications include door position, construction/ag machines, conveyors, cranes, grain diverters, lifts, material handling, presses, and valves.



Series	WGLA	WLS	WOI
<b>Housing type</b>	EN 50041	EN 50041 and back-mounting	screw mount
<b>Housing material</b>	powder-coated, zinc die-cast	powder-coated phosphate epoxy finish, zinc die-cast	powder-coated aluminum
<b>Radio</b>	WPAN 802.15.4; 2.4 GHz	WPAN 802.15.4; 2.4 GHz	WPAN 802.15.4; 2.4 GHz
<b>Signal range</b>	1000 ft [305 m] in US/Canada	1000 ft [305 m] in US/Canada	1000 ft [305 m] in US/Canada
<b>Sealing</b>	IP67; NEMA 1, 4, 12, 13	IP67/IP68; NEMA 1, 3, 4, 6, 6P, 12, 13	IP65
<b>Actuators/operating heads</b>	side rotary, top plunger, top roller, top roller lever	over 15 side rotary actuators; pin/roller plunger, side/top rotary (with more than 15 levers), cat whisker, wobble stick, side shaft eyelet pull, maintained/momentary side plunger, and cable pull operating heads	pushbutton operators: 22 mm round flush momentary, 29 mm mushroom head momentary, 40 mm mushroom head maintained (push-pull); no operator option available for use with user supplied 22 mm operator and contact blocks
<b>Antenna types</b>	direct or remote mounts, omni-directional	direct or remote mounts, omni-directional	direct or remote mounts, omni-directional
<b>Supply voltage</b>	—	—	—
<b>Supply current</b>	—	—	—
<b>Measurements (H x W x D) (without antenna)</b>	102,85 mm x 42 mm x 62,1 mm [4.05 in x 1.65 in x 2.44 in]	106,68 mm x 41,15 mm x 62,61 mm [4.20 in x 1.62 in x 2.47 in]	130 mm x 85 mm x 66 mm [5.1 in x 3.4 in x 2.6 in]
<b>Features</b>	reliable, flexible, and secure wireless transmission; EN 50041 die-cast metal enclosure; WPAN 802.15.4 2.4 GHz point-to-point; FCC 15, IC, ACMA, & ETSI; EMI immunity; full complement of operating heads and levers; direct or remote mount antenna options	operating head rotary tested in excess of 50 million cycles; diaphragm seal between head and body cavity; twin shaft seals protect head and internal components from corrosion and debris; reliable, flexible, and secure wireless transmission; EN 50041 die-cast metal enclosure; WPAN 802.15.4 2.4 GHz point-to-point; FCC 15, IC, ACMA, & ETSI; EMI immunity; direct or remote mount antenna options	enables operator indication (i.e. push button) from remote locations where wiring is too costly or not possible; flexibility for users to choose and install their desired operator type; i.e. 22 mm rotary switch, 22 mm key switch, etc.; ability to reconfigure and network multiple WOI inputs, or point-to-point with personalized addresses

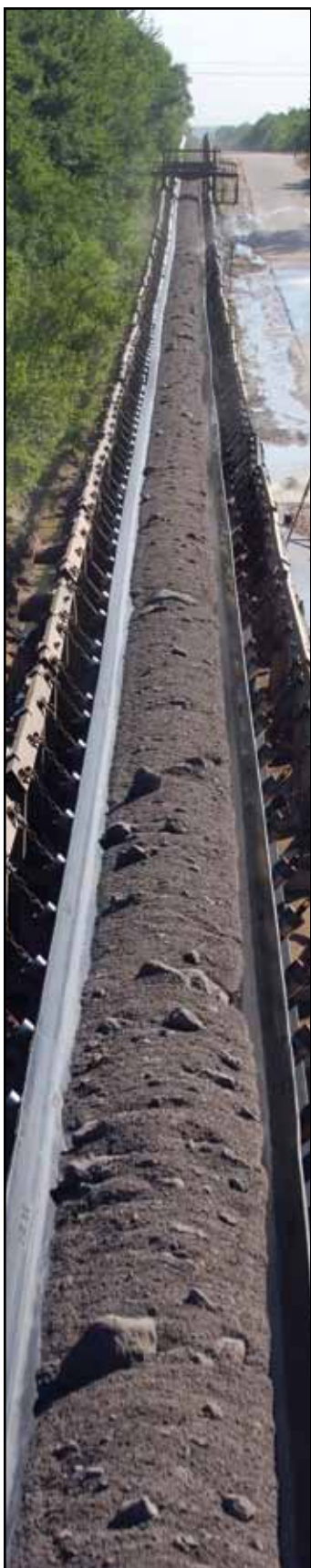




WPMW	WDRR
snap-in panel or screw mount design	din-rail or screw mount design
LCP, VECTRA E130i	flame retardant ABS (acrylonitrile butadiene styrene)
—	WPAN 802.15.4; 2.4 GHz
1000 ft [305 m] in US/Canada	1000 ft [305 m] in US/Canada
IP67	IP20
—	—
direct or remote mounts, omni-directional	direct or remote mounts, omni-directional
10 Vdc to 30 Vdc	10 Vdc to 28 Vdc
750 mA	500 mA max.
31,75 mm x 53,84 mm x 74,30 mm [1.250 in x 2.120 in x 2.925 in]	88,9 mm x 152,4 mm x 38,1 mm [3.5 in x 6 in x 1.5 in]
reliable, flexible, and secure wireless transmission; can potentially monitor up to 16 Limitless™ switches; field pairing function allows for rapid configuration (adding or subtracting switches); WPAN 802.15.4 2.4 GHz point-to-point; FCC 15, IC, ACMA, & ETSI; EMI immunity; direct or remote mount antenna options	selectable npn or pnp output; configurable normally open or normally closed output for up to 14 Limitless™ inputs; WPAN 802.15.4 2.4 GHz point-to-point; FCC 15, IC, ACMA, & ETSI; EMI immunity; LEDs indicate change of status, low battery, RF signal loss, pairing function, and diagnostic functions; eliminates issues with wire connection integrity on moving equipment

# OneWireless™ XYR6000 Components

## Wireless Position Sensors



Allows remote, reliable monitoring in a variety of applications to avoid the time and safety risk of manually monitoring in hazardous areas and remote installations. Wireless technology eliminates the need for communications cabling or power line installation, saving both time and money. Potential applications include positioners, manual process valves, eye bath stations, emergency showers, tank level, steam traps, louvers, relief valve doors, dampers, mining conveyor applications, and grain diverters.



Series	XYR6000
Housing	A 380 die-cast aluminum alloy
Radio	FCC Par 15.247 subpart s "B" & "C"
Signal range	1000 ft [304 m]
Sealing	IP66/67; NEMA 1, 3, 4, 6, 6P, 13
Hazardous ratings	U.S. and Canadian (cCSAus) for Division 1, Class I - Groups A, B, C, & D; Class II - Groups E, F, & G; Class III ATEX/IEC Ex - Ex d [ia] IIC T6 Gb; Ex tb IIIC T85C IP66/67 Db
Accuracy	±5 % over 250° when centered between a slip clutch
Operating temperature	-40 °C to 70 °C [-40 °F to 158 °F]
Measurements (H x W x D)	101,6 mm x 101,6 mm x 142,75 mm [4.00 in x 4.00 in x 5.62 in]
Features	enhances safety by reducing the need for human site monitoring in areas that pose a safety risk; reduces the potential for environmental incidence through the explosion-proof packaging of the sensor mechanism; improves efficiency of scheduled maintenance by targeting valves that have degraded; communicates with Honeywell's OneWireless™ (ISA100) network and WiFi devices simultaneously; full UL, ATEX, and IEC Ex approvals; universal mounting

# Specialty Limit Switches

## Relialign™ Door Interlock Switches



*Designed specifically for swing door applications, including residential elevators, dumbwaiters, and platform lifts. Holds the door in place and prevents it from being opened when not desired. Design features contribute to increase safety, reduce nuisance stoppages and call-backs, and contribute to simplified wiring and installation.*



Residential Door Interlock	Relialign™ RDI Series	Relialign™ RDI2 Series
Description	door interlock for swing-style doors, elevators, and vertical lifts. available with metal or plastic housing	
Housing	metal (white and architectural bronze)	thermoplastic
Approvals	compliant to ASME A17.1 and UL 104	compliant to ASME A17.1 and UL 104
Voltage	24 Vdc; 24 Vac	24 Vdc; 24 Vac
Connection	terminal strip or cat 5 available	terminal strip or cat 5 available
Measurements (H x W x D)	247,65 mm x 51,44 mm x 49,23 mm [9.75 in x 2.025 in x 1.938 in]	273,05 mm x 51,44 mm x 49,23 mm [10.75 in x 2.025 in x 1.938 in]
Features	two separate mechanisms to indicate door closure; metal key; internal solenoid control; optional external solenoid control (RDI2); no open or exposed contacts; configurable product platform	

# Machine Safety

## MICRO SWITCH™ Safety Switches




From factory floor to assembly line, from packaging machinery to robot cells, Honeywell delivers reliability and safety in compact, cost-effective safety switches. Enhanced performance, extended productivity, and full-line flexibility. Most models are SIL 3 capable.



Series	CPS/2CPS	24CE/924CE
Attributes	single/dual head cable pull designed to provide emergency stop protection; often used for exposed conveyor and assembly lines	miniature, compact die-cast zinc housing construction with a wide variety of actuators
Potential applications	conveyor applications	small doors and apertures
Housing	zinc	zinc
Approvals	UL, CSA, CE, SIL 3 capable	24CE: CE; 924CE: UL, CE, SIL 3 capable
Sealing	IP67; NEMA 1, 4, 12, 13	IP66
Contacts	silver, gold	silver
Circuitry	1NO/1NC, 2NO/2NC, 1NO/3NC, 4NC	1NC slow action, 1NC/1NO slow action BBM, 1NC/1NO slow action MBB
Differentiator	rugged, sealed, large wiring cavity; indicators; wide temperature tolerance; longest span available (up to 500 feet/152m on dual head 2CPS)	tough and rugged switch, designed to operate in harsh operating environments
Measurements (less levers) H x W x D	165,1 mm x 79,8 mm x 325,9 mm [6.5 in x 3.14 in x 12.75 in]	49,0 mm x 40,0 mm x 16,0 mm [1.93 in x 1.57 in x 0.63 in]
Temperature	-40 °C to 85 °C [-40 °F to 185 °F]	0 °C to 70 °C [32 °F to 160 °F]
Features	optional hardware packs; heavy-duty terminals: gold contacts; direct opening action of NC contacts (up to 4 contacts); LED status lights; positive opening NC contacts ➡	flexible attachment with simple two screw mounting; available pre-wired with choice of cable lengths or connector fitted; side and bottom cable entry; positive opening NC contacts ➡





GSS	GSS Hinge	GSX	FF and FFS
rugged metal housing handles multiple broad applications	metal or plastic housing for access door safety hinge applications	heavy-duty metal body, explosion-proof safety switch designed for hazardous area applications	non-contact safety switches either magnetically operated or by electronically coded magnets providing high degree of tamper-proof, reliable operation
medium/large doors and apertures	medium/large doors	gates, doors, access panels, cages	small doors and apertures
glass-filled polyester, zinc	glass-filled polyester, zinc	aluminum	ABS resin-filled, stainless steel
UL, CSA, CE, SIL 3 capable	UL, CSA, CE, SIL 3 capable	cULus, ATEX, IEC Ex, SIL 3 capable	UL, CE
IP67; NEMA 1, 4, 12, 13	IP67; NEMA 1, 4, 12, 13	IP67; NEMA 1, 4, 6, 7, 9, 12, 13	IP67, NEMA 4
silver, gold	silver, gold	silver, gold	—
1NC/1NO snap action, 2NC slow action, 3NC/1NO slow action BBM	1NC/1NO snap action, 2NC slow action, 4 NC slow action, 3NC/1NO slow action BBM	1NC/1NO snap action, 1NC/1NO slow action BBM, 1NC/1NO slow action MBB, 2NC slow action, 2NC/2NO snap action, 4NC slow action, 2NC/1NO slow acting BBM, 2NC/2NO slow acting BBM, 3NC/1NO slow acting BBM	—
highly visible red housing; snap action and slow action basic switches	highly visible red housing; actuator head may be rotated in 90° increments	explosion-proof and positive-break safety switch with cULus, ATEX, IEC Ex approvals	large actuation window from almost any angle (ranges ~6 mm to 20 mm); sealed, compact and rugged design
83,0 mm x 30,5 mm x 30,0 mm [3.27 in x 1.20 in x 1.18 in]	83,0 mm x 30,5 mm x 30,0 mm [3.27 in x 1.20 in x 1.18 in]	154,2 mm x 44,5 mm x 72 mm [6.07 in x 1.75 in x 2.84 in]	82,5 mm x 19 mm x 17 mm [3.25 in x 0.75 in x 0.67 in]
-25 °C to 85 °C [-13 °F to 185 °F]	-25 °C to 85 °C [-13 °F to 185 °F]	-40 °C to 70 °C [-40 °F to 158 °F]	-10 °C to 55 °C [14 °F to 131 °F]
multiple contact options (up to 4 MBB); full range of actuator heads and levers; reliable low energy switching; tested to 15 million operations; positive opening NC contacts 	low profile design; available with 3 actuator styles (left, center, right); multiple contact options; reliable low energy switching; positive opening NC contacts 	extensive switching and actuating options; designed so even welded contacts will open and machine will stop in emergency with positive opening NC snap action contacts (direct mechanical linkage); positive opening NC contacts 	guard status indication; small, easy to mount; either pre-wired or connector fitted; allows for door misalignment with door closed sensing



# Machine Safety

## MICRO SWITCH™ Safety Switches



Designed to help pass any test with the most impressive safety switch portfolio and solutions for application-specific needs. Widest range of sizing, sealing alternatives, enclosure materials, actuator styles, and contact options available.



Series	GKS	GKR/L
<b>Attributes</b>	solenoid trapped key interlock switch designed not to release until hazard has been removed	heavy-duty metal body solenoid trapped key interlock switch designed not to release until hazard has been removed; for large doors/cages
<b>Potential applications</b>	medium to large door applications	large, heavy door, cage and gate machine apps
<b>Housing</b>	glass-filled polyester	zinc
<b>Approvals</b>	cULus, CE, CCC, S-mark, SIL 3 capable	UL, CSA, CE, SIL 3 capable
<b>Sealing</b>	IP67; NEMA 1, 4X (indoor use only), 12, 13	IP68; NEMA 1, 4, 6P, 12, 13
<b>Contacts</b>	silver	silver
<b>Circuitry</b>	2NC/1NO/1NO, 2NC/1NO/1NC, 3NC/1NO, 4NC	1NC/1NO slow action, 3NC/1NO slow action
<b>Differentiator</b>	simple-to-mount, slim-mount glass filled polyester body; available with key entry (four available square positions); up to four contacts	rugged design withstands vibration, harsh environments; provides long-term durability (tested 15 million cycles)
<b>Measurements (less levers) H x W x D</b>	196,8 mm x 40 mm x 41 mm [7.75 in x 1.57 in x 1.61 in]	149,0 mm x 110,0 mm x 48,8 mm [5.85 in x 4.33 in x 1.92 in]
<b>Temperature</b>	-25 °C to 50 °C [-13 °F to 122 °F]	-25 °C to 85 °C [-13 °F to 185 °F]
<b>Features</b>	power-to-lock or power-to-unlock for key trap; override mechanism on cover; three knock out conduit openings for wiring flexibility (sides + bottom); optional LED indicator; positive opening NC contacts 	solenoid power-to-lock or power-to-unlock; key retain force 1000 N max; multiple key and lockout devices; dual LED indicator; available with key entry (4 face orientations); up to 4 contacts; manual override; positive opening NC contacts 



**GKM**

most compact key-operated safety product available; fully sealed construction

small doors and apertures

glass-filled polyester

UL, CSA, CE, SIL 3 capable

IP67; NEMA 1, 12, 13

silver, gold

1NO/1NC BBM,  
2NC

can be used for doors as small as 160 mm [6.3 in] with small closed radius; available cabled or with integrated M12 connectors for plug-and-play install

69,4 mm x 34,0 mm x 16,0 mm  
[2.73 in x 1.34 in x 0.63 in]

25 °C to 85 °C [-13 °F to 185 °F]

double insulated, no ground wiring required; wiring entrance options from bottom, side, or both (dual entry GKME for daisy chain capability); variety of keys available for top or front entry options; positive opening NC contact



**GKE**

compact housing size, standard IEC 20 mm mounting

small doors and apertures

glass-filled polyester

cULus, CE, S-mark, SIL 3 capable

IP66; NEMA 1, 12, 13

silver

1NC/1NO,  
1NC/1NO BBM,  
2NC

small MIN-DIN footprint; simple wiring and mounting; double insulated

92,2 mm x 24,2 mm x 29,4 mm  
[3.63 in x 0.95 in x 1.16 in]

-25 °C to 85 °C [-13 °F to 185 °F]

medium duty switch covers most common 1NC/1NO and 2NC applications key entry from top and front



**GKN**

common footprint safety switch for multiple applicability; multiple contacts, multiple key and wiring entry points

small/medium doors and apertures

glass-filled polyester

cULus, CE, CCC, S-mark, SIL 3 capable

IP67; NEMA 1, 4X (indoor use only),  
12, 13

silver

2NC/1NO BBM,  
3NC

one switch stocking for multiple contact, key entry, and wiring application combinations; large wiring cavity

90,0 mm x 40,0 mm x 33,0 mm  
[3.55 in x 1.57 in x 1.30 in]

-25 °C to 70 °C [-13 °F to 158 °F]

multi-use, multi-option; up to 3 contacts for additional monitoring; 4 key head entries; knock-out points for wiring entry; double insulated body; rigid and flexible key options available



**GK**

heavy duty metal body keyed interlock switch designed for large doors and cages

large, heavy door cage and gate applications

zinc

UL, CSA, CE, SIL 3 capable

IP67; NEMA 1, 4, 12, 13

silver, gold

1NC/1NO snap action,  
2NC slow action,  
3NC/1NO slow action

unique friction feature for key retention; rugged design withstands vibration, harsh environments, and provides long-term durability (tested 15 million cycles)

121,6 mm x 42 mm x 42,6 mm  
[1.79 in x 1.652 in x 1.68 in]

-25 °C to 85 °C [-13 °F to 185 °F]

multiple key (8 top or side entry) and lock-out device options available; LED indicator; up to four contacts; positive opening NC contacts



# Machine Safety

## Safety Sensors



Photoelectric barriers composed of several infrared beams aligned on an emitting column and a receiving column. Separate or self-contained control units, various housing sizes, resolutions, scanning ranges, and protection heights are available. Designed to meet the specifications of potential machine guarding applications from point-of-operation protection, access detection, and presence sensing to electrical-to-machine-circuitry interfacing.



Series	FF-ST2 Standard A	FF-ST2 Standard M	FF-ST4 Basic
<b>Safety category</b>	Type 2 per IEC61496 (similar to SIL2 per IEC61508)	Type 2 per IEC61496 (similar to SIL2 per IEC61508)	Type 4 per IEC61496 (similar to SIL3 per IEC61508)
<b>Application (resolution)</b>	finger (18 mm [0.71 in]) hand (30 mm [1.18 in]) limb and body (80 mm [3.15 in])	finger (18 mm [0.71 in]) hand (30 mm [1.18 in]) limb and body (80 mm [3.15 in])	finger (14 mm [0.55 in] and 18 mm [0.71 in]) hand (30 mm [1.18 in]) limb and body (80 mm [3.15 in])
<b>Scanning range (resolution)</b>	0,25 m to 10 m [0.82 ft to 32.81 ft]	0,25 m to 10 m [0.82 ft to 32.81 ft]	0 m to 3.5 m [0 ft to 11.48 ft] (14 mm [0.55 in]); 0,25 m to 10 m [0.82 ft to 32.81 ft]
<b>Beam separation distance</b>	—	—	—
<b>Product cross section</b>	42 mm x 55 mm [1.65 in x 2.17 in]	42 mm x 55 mm [1.65 in x 2.17 in]	42 mm x 55 mm [1.65 in x 2.17 in]
<b>Protected height (resolution)</b>	200 mm to 1400 mm [7.87 in to 55.12 in] (18 mm [0.71 in]); 200 mm to 1800 mm [7.87 in to 70.87 in] (30 mm [1.18 in] and 80 mm [3.15 in])	200 mm to 1400 mm [7.87 in to 55.12 in] (18 mm [0.71 in]); 200 mm to 1800 mm [7.87 in to 70.87 in] (30 mm [1.18 in] and 80 mm [3.15 in])	200 mm to 1400 mm [7.87 in to 55.12 in] (14 mm [0.55 in] and 18 mm [0.71 in]); 200 mm to 1800 mm [7.87 in to 70.87 in] (30 mm [1.18 in] and 80 mm [3.15 in])
<b>Differentiator</b>	robust housing	robust housing	robust housing
<b>Connectors</b>	M12/5 pole (100 m [328.08 ft])	M12/5 pole (100 m [328.08 ft])	M12/5 pole (100 m [328.08 ft])
<b>Basic interface module</b>	FF-SRE60292	FF-SRE60292	FF-SRL60252 or AS-i Safe
<b>External device monitoring (EDM)</b>	yes	yes	no
<b>Automatic restart</b>	yes	no	yes
<b>Restart interlock</b>	no	yes	no
<b>Muting (or bypass)</b>	—	—	no
<b>1- or 2-beam floating blanking</b>	—	—	no
<b>AS-i safe module</b>	—	—	yes
<b>PSDI<sup>1</sup> module</b>	—	—	yes
<b>Emergency stop auxiliary inputs</b>	—	—	no

<sup>1</sup> For the automatic machine cycle start upon beam clearance (Presence Sensing Device Initiation).





FF-ST4 Standard	FF-ST4 Advanced B	FF-ST4 Advanced M	FF-SYB (point of op.)	FF-SYB (long range)	FF-SYB (short range)
Type 4 per IEC61496 (similar to SIL3 per IEC61508)	Type 4 per IEC61496 (similar to SIL3 per IEC61508)	Type 4 per IEC61496 (similar to SIL3 per IEC61508)	Type 4 per IEC61496 (similar to SIL3 per IEC61508)	Type 4 per IEC61496 (similar to SIL3 per IEC61508)	Type 4 per IEC61496 (similar to SIL3 per IEC61508)
finger (14 mm [0.55 in] and 18 mm [0.71 in]); hand (30 mm [1.18 in]); limb and body (80 mm [3.15 in])	finger (14 mm [0.55 in] and 18 mm [0.71 in]); hand (30 mm [1.18 in])	finger (14 mm [0.55 in] and 18 mm [0.71 in]); hand (30 mm [1.18 in]); limb and body (80 mm [3.15 in])	finger (14 mm [0.55 in]) hand (30 mm [1.18 in])	body (2, 3, or 4 beams)	body (2 beams)
0 m to 3.5 m [0 ft to 11.48 ft] (14 mm [0.55 in]); 0,25 m to 10 m [0.82 ft to 32.81 ft]	0 m to 3.5 m [0 ft to 11.48 ft] (14 mm [0.55 in]); 0,25 m to 10 m [0.82 ft to 32.81 ft]	0 m to 3.5 m [0 ft to 11.48 ft] (14 mm [0.55 in]); 0,25 m to 10 m [0.82 ft to 32.81 ft]	0 m to 6 m [0 ft to 19.69 ft] (14 mm [0.55 in]); 0 m to 20 m [0 ft to 65.62 ft] (30 mm [1.18 in])	0 m to 30 m [0 ft to 98.43 ft] (standard range) 5 m to 80 m [16.40 ft to 262.47 ft] (long range)	0 m to 7 m [0 ft to 22.97 ft] with passive mirrors
–	–	–	–	2-beam: 500 mm [19.69 in] spacing (body/access) 3-beam: 400 mm [15.75 in] spacing (body/access) 4-beam: 300 mm [11.81 in] spacing (body/access)	2-beam: 500 mm [19.69 in] beam spacing (body/access)
42 mm [1.65 in] x 55 mm [2.17 in]	42 mm [1.65 in] x 55 mm [2.17 in]	42 mm [1.65 in] x 55 mm [2.17 in]	42 mm [1.65 in] x 55 mm [2.17 in]	42 mm [1.65 in] x 55 mm [2.17 in]	42 mm [1.65 in] x 55 mm [2.17 in]
200 mm to 1400 mm [7.87 in to 55.12 in] (14 mm [0.55 in] and 18 mm [0.71 in]); 200 mm to 1800 mm [7.87 in to 70.87 in] (30 mm [1.18 in] and 80 mm [3.15 in])	200 mm to 1400 mm [7.87 in to 55.12 in] (14 mm [0.55 in] and 18 mm [0.71 in]); 200 mm to 1800 mm [7.87 in to 70.87 in] (30 mm [1.18 in])	200 mm to 1400 mm [7.87 in to 55.12 in] (14 mm [0.55 in] and 18 mm [0.71 in]); 200 mm to 1800 mm [7.87 in to 70.87 in] (30 mm [1.18 in] and 80 mm [3.15 in])	300 mm to 1800 mm [11.81 in to 70.87 in] (14 mm [0.55 in], 30 mm [1.18 in])	–	–
robust housing, selection through wiring	robust housing, selection through wiring	robust housing, selection through wiring	fully bundled functionality, selections through micro-cards, long scanning ranges	fully bundled functionality, selections through micro-cards	fully bundled functionality, selections through micro-cards
M12/5 and 8 pole (100 m [328.08 ft])	M12/5 and 8 pole (100 m [328.08 ft])	M12/5 and 8 pole (100 m [328.08 ft])	M12/5 and 8 pole (100 m [328.08 ft])	M12/5 and 8 pole (100 m [328.08 ft])	M12/8 pole (100 m [328.08 ft])
FF-SRE60292	FF-SRE60292	FF-SRE60292	FF-SRE60292	FF-SRE60292	FF-SRE60292
yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes
no	no	yes	yes	yes	yes
no	yes	no	yes	yes	no
no	no	no	yes	–	–
no	no	no	yes	–	–
no	no	no	yes	yes	yes

# Machine Safety

## Safety Modules



Provide an interface between safety sensors and machine control circuitry. Module functionality includes safety door monitoring, emergency stop, two-hand control, extension, standstill and low speed monitoring, time delay, and muting.



Series	FF-SRS Emergency Stop	FF-SRST Emerg. Stop (del. contacts)	FF-SR2 Two-hand Controls
<b>Potential applications</b>	emergency stop device; door monitoring	delayed emergency stop device; door monitoring with solenoid key switch	machine cycle start
<b>Safety category</b>	Cat. 2 or 4 per EN954-1	Cat. 3 and 4 per EN954-1	Cat. IIIA and IIIC per EN574
<b>Housing width</b>	22,5 mm [0.89 in] 45 mm [1.77 in] 100 mm [3.94 in]	45 mm [1.77 in]	22,5 mm [0.89 in], 45 mm [1.77 in]
<b>Supply voltage</b>	24 Vdc, 120 Vac, 230 Vac	24 Vac/dc	24 Vdc, 120 Vac, 230 Vac
<b>Output contact</b>	3 NO/1 NC, 6 NO/1 NC	2 NO/1 NC direct, 2 NO/1 NC delayed	2 NO, 2 NO/1 NC, 3 NO/1 NC
<b>Switching capacity</b>	10 mA to 5 A, 1 mA to 10 A	1 mA to 5 A	1 mA to 5 A, 1 mA to 10 A
<b>Embedded functions</b>	input short-circuit and cross- fault detection; manual/auto restart with EDM loop	manual/auto restart with EDM loop; selectable time ranges	0.5 s input time monitoring
<b>Differentiator</b>	removable terminal strips; enhanced switching capacity; ac supply voltages	removable terminal strips	removable terminal strips; enhanced switching capacity; ac supply voltages
<b>Approvals</b>	complies with EU directive for machines 98/37/EC, IEC/EN 60501, DIN VDE 0113, and UL 508	complies with EU directive for machines 98/37/EC, IEC/EN 60501, DIN VDE 0113, and UL 508	complies with machinery direc- tive 98/37/EC and UL 508



### FF-SR0 Standstill Monitoring

### FF-SRT Delayed Extension

### FF-SRL Basic

### FF-SRL59022 PSDI

### FF-SRM Muting

### FF-SRE Extension

motor control	delayed emergency stop device; contact multiplication; current switching capacity	safety device with solid state outputs	automatic machine cycle start	momentary deactivation of the safety light curtain	contact multiplication; current switching capacity
Cat. 1 and 3 per EN954-1	Cat. 1 per EN954-1	Cat. 4 per EN954-1	Cat. 4 per EN954-1	Cat. 4 per EN954-1	Cat. 1 per EN954-1
45 mm [1.77 in]	45 mm [1.77 in]	22,5 mm [0.89 in] 45 mm [1.77 in]	45 mm [1.77 in]	45 mm [1.77 in]	22,5 mm [0.89 in], 100 mm [3.94 in]
24 Vdc, 120 Vac, 230 Vac	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vac/dc, 120 Vac, 230 Vac
2 NO/1 NC, 2 NO/2 NC	1 NO/1 NC	3 NO/1 NC	3 NO	3 NO	4 NO + 2 NC, 7 NO + 1 NC
1 mA to 4 A, 10 mA to 10 A	Up to 8 A	10 mA to 5 A, 1 mA to 10 A	1 mA to 5 A	1 mA to 5 A	10 mA to 5 A, 1 mA to 10 mA
motor back EMF monitoring or rotation frequency measurement	selectable time ranges	manual/auto restart with EDM loop	manual restart with EDM loop; presence sensing device initiation: single or dual stroke with selectable time window	manual/auto restart with EDM loop; 2 or 4 muting inputs; 1 or 2 light curtains; muting lamp; auxiliary emergency stop circuit	redundant relay outputs (pair of safety relays with guided contacts)
removable terminal strips; enhanced switching capacity; ac supply voltages	dual timing circuit	removable terminal strips; enhanced switching capacity	removable terminal strips	removable terminal strips	removable terminal strips; high switching capacity; ac supply voltages
complies with machinery 98/37/EC and UL 508; designed for category 1 emergency stop functions per EN 418 and NFPA79	complies with machinery directive 98/37/EC, IEC 255, VDE 0435 and UL 508	complies with EU machinery directive 98/37/EC, IEC 204, EN 60204, DIN VDE 0113	complies with IEC 61508 and EN 61496-1 European standards; meets applicable parts of the US and Canadian regulations and standards	per the EN 354-1 and EN 61496-1 European standards; meets applicable parts of the US and Canadian regulations and standards ANSI/RIA/OSHA	complies with the machinery directive 98/37/EC, IEC 204, EN 60204, DIN VDC 0113, and UL 508



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 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, 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.



# 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:** Digital or analog versions. Configured with integrated circuitry. Provide on-chip signal conditioning with interchangeability of  $\pm 3\%$  accuracy and out-of-the-box reliability. Standardized, platform-based sensors. **May be used in:** Air compressors, food and beverage packaging and processing, HVAC/R, incubators/micro-environments, 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, 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, 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.



**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, and commercial aviation.



**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, and military/commercial aviation.

## 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, 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:** 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.



**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, 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:** 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, and process control.



**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.



**Pressure and vacuum switches:** Feature set points from 0.5 psi to 3000 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, and pool water pressure.

## 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, 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.

## **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 acknowledgment 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**

## **Honeywell Sensing and Control**

1985 Douglas Drive North  
Golden Valley, MN 55422  
[www.honeywell.com](http://www.honeywell.com)

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