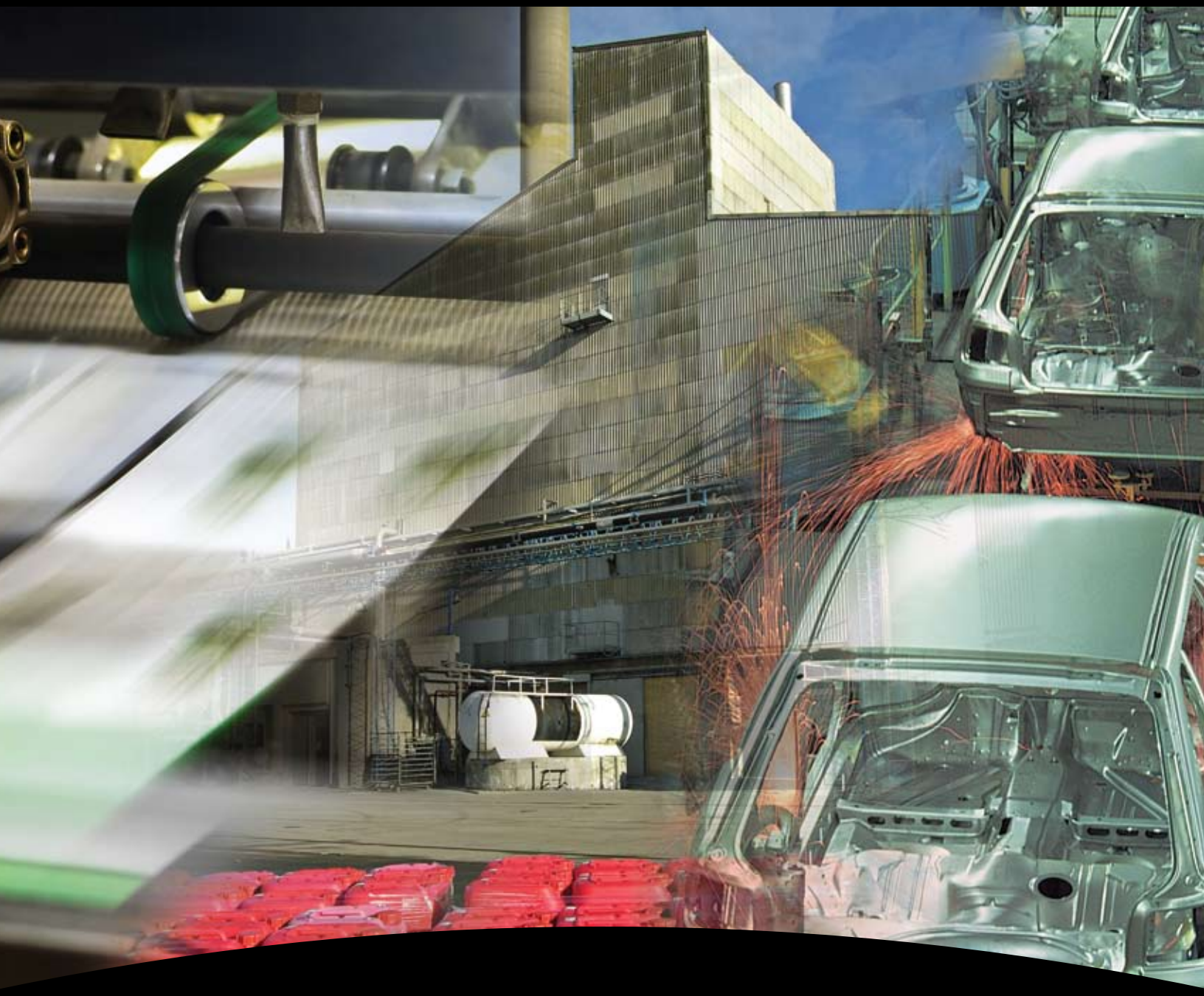
Limit Switches and Machine Safety

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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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.

Series	HDLS Standard	Stainless Steel	Fully Potted
Housing type	HDLS plug-in and non-plug-in	stainless steel non plug-in	HDLS non plug-in
Sealing	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
Temperature range	-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]
Housing material	zinc die-cast	stainless steel	zinc die-cast
Actuators/levers	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
Termination	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
Approvals	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
Circuitry	1NC 1NO SPDT, 1NC direct acting; 2NC 2NO DPDT, 2NC 2NO DPDT sequential	1NC 1NO SPDT, 1NC direct acting; 2NC 2NO DPDT	1NC 1NO SPDT; 2NC 2NO DPDT
Contacts	silver, gold	silver, gold	silver, gold
Amp rating	10 A (thermal)	10 A (thermal)	10 A (thermal)
Measurements (H x W x D)	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]
Features	wide variety of actuators, circuitry options, and connectivity	series 300 stainless steel housing suitable for corrosive environment and wash down food and beverage applications	construction eliminates 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, wobble	side rotary, top plunger, top roller, 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, 2NO and 2NC	SPDT snap action DB, SPDT slow action BBM/ MBB, DPDT snap action DB, 2NO and 2NC
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	direct-acting NC contacts	direct-acting NC contacts

GLD	GLE	91MCE	SZL-VL
EN 50047	EN 50047 compatible	–	–
IP66; 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]
plastic	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/roller plunger, panel mount actuators	side rotary, top 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, DPDT snap action DB, 2NO and 2NC	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]
direct-acting NC contacts	direct-acting NC contacts	direct-acting NC contacts; side and bottom exit connection options	integral cord grip; gold-plated silver contacts

MICRO SWITCH™ Limit Switches
Medium-Duty and Specialty 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; 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]	-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, pushbutton, wobble	side rotary, roller arm
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
Circuitry	SPDT, SPSTNC, SPDTMBB, SPDTBBM	SPDT double break, DPDT double break
Contacts	silver, gold	silver, gold
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; direct-acting contacts available; pre-leaded or various quick-connect terminations	mode of operation is field adjustable; variety of operating characteristics

Series	Residential Door Interlock
Description	door interlock for swing-style doors, elevators, and vertical lifts
Approvals	compliant to ASME A17.1 and UL 104
Voltage	24 Vdc; 24 Vac
Connection	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]
Features	two separate mechanisms to indicate door closure; metal key; internal solenoid control; no open or exposed contacts; configurable product platform

BZE6/V6	SL1
split housing, side mount; split housing, flange mount	–
NEMA 1, 3, 4, 12 E6/V6-RQ: IP40; NEMA 1 E6/V6-RN: IP66; NEMA 1, 3, 4	IP67; NEMA 3, 4, 13
-32 °C to 71 °C [-25 °F to 160 °F]	-10 °C to 70 °C [14 °F to 160 °F]
zinc die-cast	zinc die-cast
top plunger, maint. with reset plunger; lever actuated; wobble	top plunger, roller arm
0.5 in - 14NPT (or NPSM) conduit, mini-connector, cable	cable gland
UL, CSA	UL, CSA
SPDT, DPDT	SPDT
silver	silver, gold
10 A or 15 A	5 A
63,5 mm x 25,4 mm x 77,2 mm] [2.50 in x 1.00 in x 3.04 in]	59,8 mm x 44,2 mm x 18 mm [2.35 in x 1.74 in x 0.71 in]
rugged electrostatic, epoxy-coated housing; booted versions sealed to IP66; unsealed actuators sealed to IP40; side or flange mount; low temperature options	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.

Series	EX	GXE	14CE100
Approvals	UL, CSA, ATEX (CE), IEC Ex	ATEX (CE)	ATEX (CE)
Designations	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	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
Sealing	NEMA 1, 7, 9	IP66/67	IP65, IP66, IP66/67
Housing material	aluminum	zinc	zinc
Actuators/ levers	side rotary, top plunger, top roller plunger, manual	side rotary, top plunger, top roller	top plunger, roller plunger, cross-roller
Termination	0.5 in - 14NPT conduit, lead wires	5 m cable	cable (various lengths)
Circuitry	1NC 1NO SPDT snap action; 1NC 1NO SPDT maintained; 2NC 2NO DPDT snap action	1NC 1NO SPDT snap action	1NC 1NO SPDT snap action
Operating temperature	-40 °C to 71 °C [-40 °F to 160 °F]	-20 °C to 75 °C [-4 °F to 167 °F]	0 °C to 70 °C [32 °F to 158 °F]
Amp rating	1 A, 10 A, 15 A, 20 A	5 A (thermal)	1 A (thermal), 5 A (thermal)
Measurements (H x W x D)	65,0 mm x 70,6 mm x 51,3 mm [2.56 in x 2.78 in x 2.02 in]	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]
Features	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]	EN 50047 mounting compatible; double-insulated switch element; snap-action basic switch	pre-wired or connector versions; gang-mounting capability; cable length variations; simple two screw mounting

CX	LSX	BX	GSX	CLSX
UL, CSA, ATEX (CE), IEC Ex (consult factory for applicable listings)	UL, CSA	UL, CSA, ATEX, IEC Ex	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	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
IP66; NEMA 1, 3, 4, 4X, 6, 6P, 7, 9, 13	IP67; NEMA 1, 3, 4, 6, 13	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
aluminum, bronze	aluminum	aluminum	aluminum	aluminum
side rotary, plunger only	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	side rotary, pin plunger, top roller plunger, top roller lever	cable, maintained
0.75 in - 14 NPT conduit, 25 mm conduit	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	0.5 in - 14NPT conduit, 20 mm conduit	0.5 in - 14NPT conduit, 20 mm conduit
1NC 1NO SPDT; 2NC 2NO DPDT; 4 mA to 20 mA; analog output: 4NC 4NO	1NC 1NO SPDT DB snap action; 2NC 2NO DPDT DB snap action	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
-25 °C to 85 °C [-13 °F to 185 °F]	-12 °C to 121 °C [10 °F to 250 °F]	-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]
1 A, 10 A, 15 A, 20 A	0.05 A, 10 A (thermal)	0.05 A, 10 A (thermal)	10 A (thermal)	10 A (thermal)
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]	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]	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]
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	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	snap-action contacts with positive break; simple installation; positive action push plunger	positive-opening operating of NC contacts; cable length may be 200 ft in straight line; internal grounding screw

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.

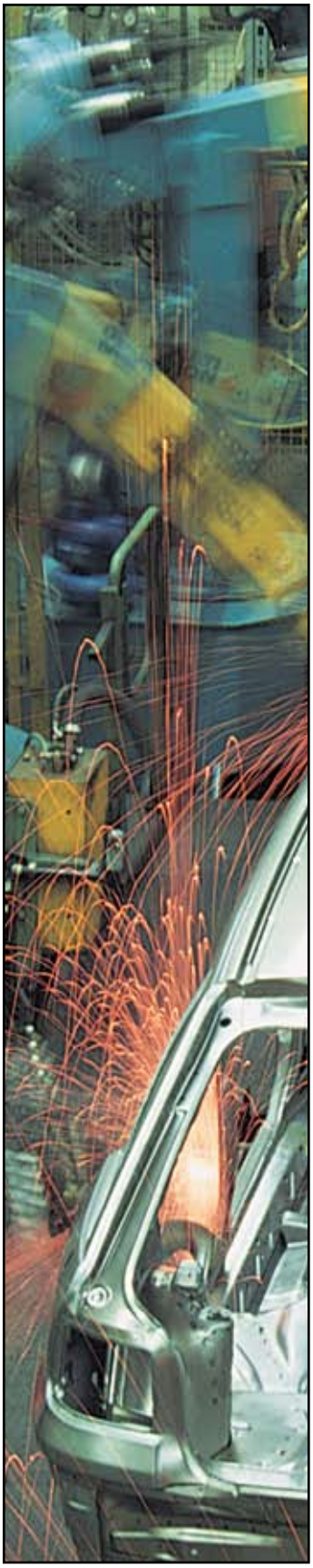
Series	FF and FFS	GKM
Attributes	non-contact safety switches either magnetically operated or by electronically coded magnets providing high degree of tamper-proof, reliable operation	most compact key-operated safety product available; fully sealed construction
Potential applications	small doors and apertures	small doors and apertures
Housing	ABS resin-filled, stainless steel	glass-filled polyester
Approvals	UL, CE	UL, CSA, CE, S-mark
Sealing	IP67, NEMA 4	IP67; NEMA 1, 12, 13
Differentiator	large actuation window from almost any angle (ranges ~6 mm to 20 mm); sealed, compact and rugged design	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
Measurements (less levers) H x W x D	82,5 mm x 19 mm x 17 mm [3.25 in x 0.75 in x 0.67 in]	69,4 mm x 34,0 mm x 16,0 mm [2.73 in x 1.34 in x 0.63 in]
Temperature	-10 °C to 55 °C [14 °F to 131 °F]	25 °C to 85 °C [-13 °F to 185 °F]
Features	DIN rail mounting; guard status indication; small, easy to mount; either pre-wired or connector fitted	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.

Series	24CE/924CE	GK
Attributes	miniature, compact die-cast zinc housing construction with a wide variety of actuators	heavy duty metal body keyed interlock switch designed for large doors and cages
Potential applications	small doors and apertures	large, heavy door cage and gate applications
Housing	zinc	zinc
Approvals	24CE: CE; 924CE: UL, CE	UL, CSA, CE, S-mark
Sealing	IP66	IP67; NEMA 1, 4, 12, 13
Differentiator	tough and rugged switch, designed to operate in harsh operating environments	unique friction feature for key retention; rugged design withstands vibration, harsh environments, and provides long-term durability (tested 15 million cycles)
Measurements (less levers) H x W x D	49,0 mm x 40,0 mm x 16,0 mm [1.93 in x 1.57 in x 0.63 in]	121,6 mm x 42 mm x 42,6 mm [1.79 in x 1.652 in x 1.68 in]
Temperature	0 °C to 70 °C [32 °F to 160 °F]	-25 °C to 85 °C [-13 °F to 185 °F]
Features	flexible attachment with simple two screw mounting; available pre-wired with choice of cable lengths or connector fitted; side and bottom cable entry	multiple key (8 top or side entry) and lockout device options available; LED indicator; up to four contacts

GKN	GKE	GKS	GSX
common footprint safety switch for multiple applicability; multiple contacts, multiple key and wiring entry points	compact housing size, standard IEC 20 mm mounting	solenoid trapped key interlock switch designed not to release until hazard has been removed	heavy-duty metal body, explosion-proof safety switch designed for hazardous area applications
small/medium doors and apertures	small doors and apertures	medium to large door applications	gates, doors, access panels, cages
glass-filled polyester	glass-filled polyester	glass-filled polyester	aluminum
cULus, CE, CCC, S-mark	cULus, CE, S-mark	cULus, CE, CCC, S-mark	cULus, ATEX, IEC Ex
IP67; NEMA 1, 4, 12, 13	IP66; NEMA 1, 12, 13	IP67; NEMA 1, 4, 12, 13	IP67; NEMA 1, 4, 6, 7, 9, 12, 13
one switch stocking for multiple contact, key entry, and wiring application combinations; large wiring cavity	small MIN-DIN footprint; simple wiring and mounting; double insulated	simple-to-mount, slim-mount glass filled polyester body; available with key entry (four available square positions); up to four contacts	explosion-proof and positive-break safety switch with cULus, ATEX, IEC Ex approvals
90,0 mm x 40,0 mm x 33,0 mm [3.55 in x 1.57 in x 1.30 in]	92,2 mm x 24,2 mm x 29,4 mm [3.63 in x 0.95 in x 1.16 in]	196,8 mm x 40 mm x 41 mm [7.75 in x 1.57 in x 1.61 in]	154,2 mm x 44,5 mm x 72 mm [6.07 in x 1.75 in x 2.84 in]
-25 °C to 70 °C [-13 °F to 158 °F]	-25 °C to 85 °C [-13 °F to 185 °F]	-25 °C to 50 °C [-13 °F to 122 °F]	-40 °C to 70 °C [-40 °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	medium duty switch covers most common 1NC/1NO and 2NC applications key entry from top and front	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.	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)

GKR/L	GSS	GSS Hinge	CPS/2CPS
heavy-duty metal body solenoid trapped key interlock switch designed not to release until hazard has been removed; for large doors/cages	rugged metal housing handles multiple broad applications	metal or plastic housing for access door safety hinge applications	single/dual head cable pull designed to provide emergency stop protection; often used for exposed conveyor and assembly lines
large, heavy door, cage and gate machine apps	medium/large doors and apertures	medium/large doors	conveyor applications
zinc	glass-filled polyester, zinc	glass-filled polyester, zinc	zinc
UL, CSA, CE, S-mark	UL, CSA, CE	UL, CSA, CE	UL, CSA, CE
IP67; NEMA 1, 4, 6P, 12, 13	IP67; NEMA 1, 4, 12, 13	IP67; NEMA 1, 4, 12, 13	IP67; NEMA 1, 4, 12, 13
rugged design withstands vibration, harsh environments; provides long-term durability (tested 15 million cycles)	highly visible red housing; snap action and slow action basic switches	highly visible red housing; actuator head may be rotated in 90° increments	rugged, sealed, large wiring cavity; indicators; wide temperature tolerance; longest span available (up to 500 feet/152m on dual head 2CPS)
149,0 mm x 110,0 mm x 48,8 mm [5.85 in x 4.33 in x 1.92 in]	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]	165,1 mm x 79,8 mm x 325,9 mm [6.5 in x 3.14 in x 12.75 in]
-25 °C to 85 °C [-13 °F to 185 °F]	-25 °C to 85 °C [-13 °F to 185 °F]	-25 °C to 85 °C [-13 °F to 185 °F]	-40 °C to 85 °C [-40 °F to 185 °F]
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	multiple contact options (up to 4 MBB); full range of actuator heads and levers; reliable low energy switching; tested to 15 million operations	low profile design; available with 3 actuator styles (left, center, right); multiple contact options; reliable low energy switching	optional hardware packs; heavy-duty terminals: gold contacts; direct opening action of NC contacts (up to 4 contacts); LED status lights

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
Safety category	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)
Application (resolution)	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])
Scanning range (resolution)	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]
Beam separation distance	–	–	–
Product cross section	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]
Protected height (resolution)	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])
Differentiator	robust housing	robust housing	robust housing
Connectors	M12/5 pole (100 m [328.08 ft])	M12/5 pole (100 m [328.08 ft])	M12/5 pole (100 m [328.08 ft])
Basic interface module	FF-SRE60292	FF-SRE60292	FF-SRL60252 or AS-i Safe
External device monitoring (EDM)	yes	yes	no
Automatic restart	yes	no	yes
Restart interlock	no	yes	no
Muting (or bypass)	–	–	no
1- or 2-beam floating blanking	–	–	no
AS-i safe module	–	–	yes
PSDI[1] module	–	–	yes
Emergency stop auxiliary inputs	–	–	no

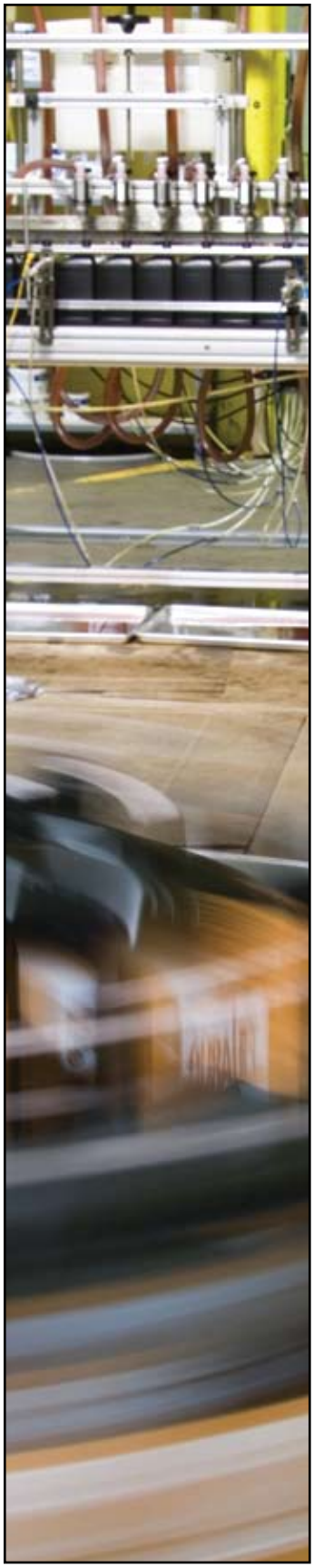
[1] For the automatic machine cycle start upon beam clearance (Presence Sensing Device Initiation).






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.

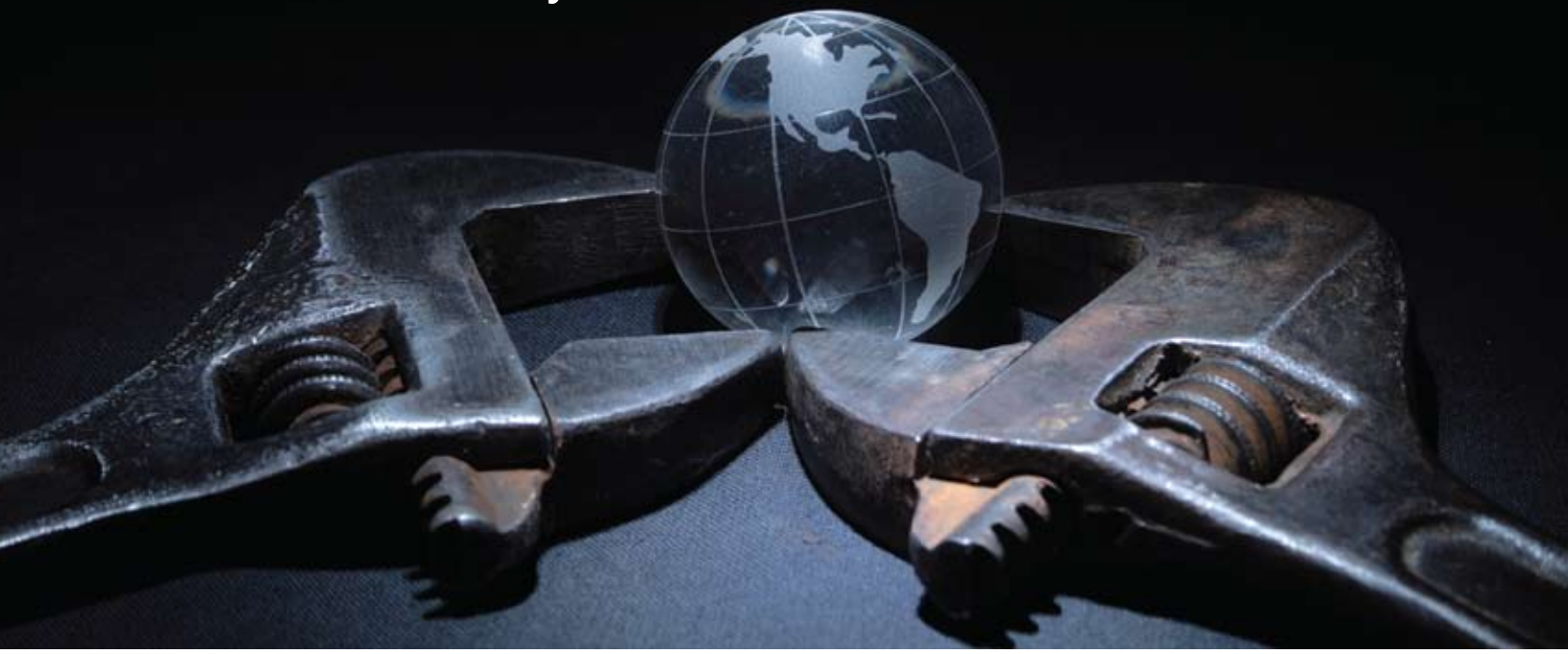
Series	FF-SRS Emergency Stop	FF-SRST Emerg. Stop (del. contacts)	FF-SR2 Two-hand Controls
Potential applications	emergency stop device; door monitoring	delayed emergency stop device; door monitoring with solenoid key switch	machine cycle start
Safety category	Cat. 2 or 4 per EN954-1	Cat. 3 and 4 per EN954-1	Cat. IIIA and IIIC per EN574
Housing width	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]
Supply voltage	24 Vdc, 120 Vac, 230 Vac	24 Vac/dc	24 Vdc, 120 Vac, 230 Vac
Output contact	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
Switching capacity	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
Embedded functions	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
Differentiator	removable terminal strips; enhanced switching capacity; ac supply voltages	removable terminal strips	removable terminal strips; enhanced switching capacity; ac supply voltages
Approvals	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 directive 98/37/EC and UL 508






FF-SR0 Stand-still 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 aeropace/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™ 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. Proportional output voltage. 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, magnetoresistive, 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: SMART position sensor: **S**uperior **M**easurement, **A**ccuracy, **R**eliability, and **T**hinking. The most accurate linear position sensor available in the industry (0,05 mm [0.002 in]), enabling highly accurate motion control, and improving efficiency and safety. Non-contact design eliminates mechanical failure mechanisms, reducing wear and tear, improving reliability and durability, and minimizing downtime. Robustness in most harsh environments. Easy to install, reducing set-up costs. Potentiometric sensors withstand harsh chemicals and immersion into oils or water. Extended life PTFE bearings, precious metal multi-finger contact wipers, and MYSTR® conductive plastic thick-film elements. Analog output correlated to location. **May be used in:** Injection molding, printing presses, cylinder positioning, gauges, controls, aircraft, elevators, material handling, packaging, molding, valves, wafer handling, and woodworking machinery.

Pressure sensors - silicon: Full line of industrial-grade sensors: media-isolating design, multiple ports and outlets, and electrical configurations. **May be used in:** Pneumatic controls, air compressors, process monitoring, hydraulic controls, VAV controls, clogged filter detection, presence/absence of flow, transmissions, and refrigeration.

Pressure sensors - stainless steel media isolated: Bonded strain gage technology. Very resistant to effects of shock, vibration, and hostile environments. **May be used in:** HVAC, hydraulic controls, suspensions, agricultural equipment, engines, compressors, robotics, industrial and automotive systems, pressure transmitters, process controls, and medical diagnostics.

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 and hatch open/closed monitoring.

Rotary position sensors: Digital and analog Hall-effect, magnetoresistive, and potentiometric devices for sensing presence of a magnetic field or rotary position. Directly compatible with other electronic circuits for application flexibility. **May be used in:** Audio and lighting, frequency, temperature, position, time, medical/instrumentation, computer peripherals, manual controls, joysticks, telecommunication, 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, compressors, industrial process control, engines/motors, wheels, and tachometers.

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™ basic switches: Snap-action precision switches. Compact. Lightweight. Designed for repeatability and enhanced life. Premium and standard basic 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, contract 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 and its 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.

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.

⚠ WARNING

MISUSE OF DOCUMENTATION

- The information presented in this literature is for reference only. DO NOT USE this document as product installation information.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

For products not designed for safety applications:

⚠ WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

For products designed for safety applications:

⚠ WARNING

RISK TO LIFE OR PROPERTY

Never use this product for an application involving serious risk to life or property without ensuring that the system as a whole has been designed to address the risks, and that this product is properly rated and installed for the intended use within the overall system.

Failure to comply with these instructions could result in death or serious injury.

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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