

MICRO SWITCH™

Basic Switches

Line Guide



The switch is on. Simple, superior, durable, and irreplaceable even by 21st-century standards, the MICRO SWITCH™ technology cycles on. Today, Honeywell Sensing and Control (S&C) manufactures millions of MICRO SWITCH™ basic switches annually for water and irrigation, aerospace and defense, industrial, off-highway, and medical applications. They are globally compliant, and known worldwide for their compact and lightweight design, accurate repeatability, and extended life.

Looking for enhanced accuracy and repeatability? Our premium line of MICRO SWITCH™ Large and Subminiature switches were designed for high-precision applications. Originally developed

to support United States aircraft in World War II, advancements in packaging and operating controls have helped further expand applications over the past 75 years while maintaining enhanced accuracy and repeatability. Our standard line of basic switches includes our V15 series, and is designed with the same high quality standards, but for low cost-of-failure applications – ones where the cost of replacing the switch is less than the cost of a switch failing.

MICRO SWITCH™ V-Basic series switches are often best suited for presence and absence detection where physical contact with an object is permissible. They also excel in applications requiring simple on-and-off actions.

FEATURES

V-BASIC SWITCHES

V-Basic Premium V7 Series.

Features: World-wide package size acceptance • Current rating ranges from 0.1 A to 25 A • Wiping contact action • Temperature range to 177 °C [350 °F] • Extended mechanical life • Elongated mounting holes for easier, more accurate mounting • UL/CSA recognized, ENEC (European) approval available • Choice of actuation, termination and operating characteristics

Benefits: “Premium” product line: designed to withstand 100K operations at full load or 10M for mechanical life. For broad range electrical loads and operating force in high cost-of-failure potential applications: appliances, timing devices, office equipment, computer/business equipment, test instruments, manually operated devices, and valves.

V-Basic Standard V15 Series.

Features: Broad range of electrical loads • Straight roller, simulated roller, and special actuators • Special terminations available upon request • Precision

operation and application versatility

• Wide temperature range • Global approvals (ENEC, CQC, UL, cUL)
Benefits: “Standard” product line: designed for precision, reliability, 50K operations at full load or 5M for mechanical life of switch. Series for low cost-of-failure potential applications: appliances, gaming, vending machines, water heaters, and industrial controls.

PREMIUM MINIATURE/ SUBMINIATURE SWITCHES

SM Series.

Features: Extended operating life • Elongated mounting hole provides for easier, more accurate mounting • Choice of actuation, electrical termination, and operating characteristics (sensitive differential travel as low as 0,0254 mm [0.001 in] maximum, low operating force to 0,56 N [2.0 oz] maximum) • MIL-PFR-8805 qualified listings available

Benefits: Small size and light weight are combined with ample electrical capacity, precision operation, and extended life. Features high precision and repeatability.

Options available (gold contacts for low energy switching, bifurcated gold contacts for maximum reliability, power load switching capability to 11 A). Potential applications include aerospace, instrumentation, appliances, office equipment, medical/dental equipment, valves, and more.

SX Series.

Features: Extended operating life • Elongated mounting hole for easier, more accurate mounting • Choice of actuation, electrical termination, and operating characteristics • MIL-PFR-8805 qualified listings available

Benefits: Lower operating force provides for enhanced operation and application versatility. Features enhanced precision and repeatability. Covered case construction with molded-in terminals allows for very simple adaptation to the customers’ actuation systems. Potential applications include aerospace, instrumentation, appliances, office equipment, medical/dental equipment, valves, and more.

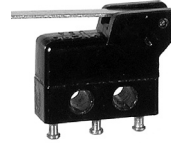
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Products and solutions to meet any need. Honeywell S&C MICRO SWITCH™ premium and standard basic switches are precision snap-action mechanisms enclosed in accurately molded plastic cases. Each switch contains a spring and a set of contacts that convert mechanical energy applied to an actuator into an electrical output. And each regular size, miniature and subminiature basic switch is carefully manufactured and thoroughly inspected.

Honeywell S&C also offers a wide variety of actuators, terminations, circuitry configurations, electrical ratings, contact materials, operating characteristics and sealing — to provide amazing application flexibility. Potential sample applications include power load switching, dc motor and solenoid control, limit and control mechanisms, door interlock and multiple mounting configurations. While special application products include door interlocks that automatically cut power when service drawers are opened, as well as switches handling a variety of special electrical load requirements.



V-Basic Switches	V-Basic Premium V7 Series	V-Basic Standard V15 Series
Amp rating	0.1 A to 21 A	16 A, 22 A
Circuitry	SPDT, SPNO, SPNC	SPDT, SPNO, SPNC
Operating force	0.7 oz max. to 14.6 oz max.	US: ≥100 g (16 A to 22 A) AP: 15 g to 400 g (5 A to 22 A)
Terminations	quick connect, pc board, pcb straight angle left	quick connect
Actuators/Levers	pin plunger, straight, short flag, roller, sim. roller, curved tip, loop, paddle	pin plunger, straight, roller, sim. roller
Voltage	125 Vac, 250 Vac, 277 Vac	125 Vac, 250 Vac
Approvals	UL, CSA, ENEC	UL, cUL, ENEC, CQC
Operating temperature	-40 °C to 82 °C [-40 °F to 180 °F]	-25 °C to 150 °C [-13 °F to 300 °F]
Contacts	silver, silver cadmium oxide, gold	silver cadmium oxide
Housing material	PCT polyester thermoplastic	PBT polyester thermoplastic



Premium Miniatures and Subminiatures

SM Series

SX Series

Amp rating	0.1 A to 11 A	1 A to 7 A
Circuitry	SPDT	SPDT, SPNO
Operating force	0.04 oz to 2 oz	0.71 oz to 6 oz
Terminations	quick connect, solder, pcb	quick connect, solder, pcb
Actuators/Levers	pin plunger, straight, roller, sim. roller, paddle	pin plunger, straight, roller, sim. roller, offset flag, crossed roller
Voltage	115 Vac, 125 Vac, 250 Vac, 30 Vdc	125 Vac, 250 Vac, 28 Vdc
Approvals	UL, CSA, ENEC, CE	UL, CSA, ENEC, CE
Operating temperature	-55 °C to 125 °C [-67 °F to 267 °F]	-55 °C to 125 °C [-67 °F to 267 °F]
Contacts	silver, gold	silver, gold
Housing material	phenolic	phenolic or valox



Standard Miniatures and Subminiatures

ZM Series

ZV Series

ZW Series

ZX Series

Amp rating	0.1 A, 5 A, 10.1 A	0.1 A, 6 A, 10.1 A	0.1 A, 5 A	0.1 A, 3 A
Circuitry	SPST, SPDT, SPNO	SPDT, SPNO, SPNC	SPDT, SPNO, SPNC	SPDT, SPST
Operating force	0.18 oz to 8.78 oz	0.78 oz to 11.01 oz	1.94 oz to 7.16 oz	0.53 oz to 5.3 oz
Terminations	quick connect, solder, pcb	quick connect, solder, pcb	quick connect, solder, cable bottom/end	solder, pcb snap-in, pcb left angle, pcb right angle
Actuators/Levers	pin plunger, straight, roller, sim. roller, L-shaped	pin plunger, straight, roller, sim. roller	pin plunger, straight, roller, sim. roller	pin plunger, straight, sim. roller, special
Voltage	125 Vac, 250 Vac, 30 Vdc	125 Vac, 250 Vac, 6(2) A 250 Vac	125 Vac, 250 Vac	125 Vac, 48 Vdc
Approvals	UL, CSA, CE	UL, cUL, ENEC, CE	UL, cUL, CE, ENEC	UL, CSA
Operating temperature	-25 °C to 85 °C [-13 °F to 185 °F]	-25 °C to 85 °C [-13 °F to 185 °F]	-25 °C to 80 °C [-13 °F to 176 °F]	-25 °C to 85 °C [-13 °F to 185 °F]
Contacts	silver, gold-plated silver, silver-tin-indium oxide	silver, gold-plated silver, silver-tin-indium oxide	silver, gold-plated silver	silver, gold-plated silver
Housing material	polyamide (nylon)	polyamide (nylon)	PBT (polyester)	polyamide (nylon)

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Premium Large Basic Switches

BZ, BA, BM, BE Series

DT Series

Amp rating	15 A (BZ); 22 A (BM); 20 A (BA); 25 A (BE)	10 A
Circuitry	SPDT	DPDT
Operating force	1.0 oz to 28 oz	7.0 oz to 10.0 oz
Terminations	quick connect, solder, screw	screw
Actuators/Levers	pin plunger, overtravel plunger, straight, roller, flexible roller leaf, flexible leaf	pin plunger
Voltage	115 Vac, 125 Vac, 250 Vac	250 Vac, 28 Vdc
Approvals	UL, CSA, ENEC, CE (varies by model)	UL, CSA
Operating temperature	-55 °C to 85 °C [-67 °F to 185 °F]	-55 °C to 85 °C [-67 °F to 185 °F]
Contacts	silver, silver cadmium oxide	silver
Housing material	general purpose phenolic	general purpose phenolic



Premium Large Basic Switches

MT Series

3MN Series

6AS Series

Amp rating	10 A	15 A	10 A, 15 A, 20 A
Circuitry	SPDT	two circuit, double break (2 CKT DB)	SPDT
Operating force	2.0 oz to 18 oz	7.0 oz to 20 oz	8 oz to 14 oz
Terminations	screw	screw	solder, screw, A2, T
Actuators/Levers	pin plunger, straight, roller	pin plunger	straight, roller, leaf
Voltage	125 Vac, 125 Vdc	480 Vac	125 Vac, 250 Vac, 480 Vac
Approvals	UL, CSA	UL, CSA	UL
Operating temperature	-55 °C to 82 °C [-67 °F to 180 °F]	-55 °C to 85 °C [-67 °F to 185 °F]	-55 °C to 85 °C [-67 °F to 185 °F]
Contacts	silver	silver	silver
Housing material	arc resistant melamine	general purpose phenolic	general purpose phenolic

STANDARD MINIATURE/ SUBMINIATURE SWITCHES

ZM Series.

Features: Choice of low energy or power duty electrical ratings (gold-plated or silver contacts) • SPDT or SPST circuitry available • Choice of ratings, actuation, termination, and operating characteristics

Benefits: Used for simple or precision ON/OFF application needs. These switches combine small size and light weight with ample electrical capacity, low cost and long life. Potential applications include vending machines, timing devices, computer/business equipment, HVAC equipment, and more.

ZV Series.

Features: Subminiature: 10,6 mm H x 6,4 mm W x 19,8 mm L [0.42 in H x 0.25 in W x 0.78 in L] • Choice of low energy or power duty electrical ratings (gold-plated or silver contacts) • Single pole double throw (SPDT) circuitry or single pole single throw (SPST) circuitry available • Choice of ratings, actuation, termination and operating characteristics

Benefits: Switches combine small size and light weight with ample electrical capacity, low cost and extended life. The molded-in terminals reduce the possibility of switch cavity contamination. Potential applications include vending machines, timing devices, computer/business equipment, HVAC equipment, and more.

ZW Series.

Features: Choice of low energy or power duty electrical ratings (gold-plated or silver contacts) • Single pole double throw (SPDT) circuitry or single pole single throw (SPST) circuitry available • Choice of ratings, actuation, termination and operating characteristics • PBT polyester housing material • IP67 sealed available

Benefits: Switches combine small size and light weight with ample electrical capacity, low cost and extended life. Potential applications include appliances, timing devices, office equipment, test instruments communications equipment, valves, and more.

ZX Series.

Features: Subminiature switch • Choice of low energy or power duty electrical ratings (gold-plated or silver contacts) • SPDT or SPST circuitry available • 0.1 A or 3 A ratings • Choice of actuation, termination and operating characteristics • Polybutylene terephthalate housing material

Benefits: Switches combine small size and light weight with ample electrical capacity, low cost and long life. Potential applications include appliances, vending machines, timing devices, office equipment, computer/business equipment, test instruments, medical/dental equipment, communications equipment, HVAC equipment, manually operated devices, and valves.

PREMIUM LARGE BASIC SWITCHES

BZ, BA, BM, and BE Series.

Features: Accepted world-wide standard "Large Basic" switch • Low operating force and differential travel • Extended mechanical life up to 20,000,000 cycles at 95 % survival • Elongated mounting hole for easier, more accurate mounting • Current rating ranges from 15 A to 25 A • Choice of actuation, termination and operating characteristics • High temperature versions (204 °C [400 °F]) available • Momentary or maintained actions

Benefits: Through the use of optional seal plungers and covers, switches are capable of an IP67 rating. Potential applications include irrigation systems, semi-trailer trucks, timing devices, medical/dental equipment, manually operated devices, valves, and more.

DT Series.

Features: Mounting interchangeability with Z Series switches • Rated for 10 A at 240 Vac • Design permits several wiring combinations

Benefits: Consists of two independent single-pole double throw (SPDT) circuits in one housing actuated by one actuator. Terminals are separated

by a non-conductive shield to reduce shorting. Potential applications include irrigation systems, semi-trailer trucks, timing devices, office equipment, HVAC equipment, and more.

MT Series.

Features: Mounting interchangeability with BZ/BA Series switches • Rated for 10 A resistive at 125 Vac/Vdc and 3 A resistive at 250 Vdc • Expected mechanical life of 100,000 cycles at 95 % survival • Arc-extinguishing design in contact area • Arc-resistant case

Benefits: Magnetic blow-out switches designed to switch high capacity (125 Vdc and 250 Vdc) systems. Integral magnet around the contact gap protects the contacts by deflecting the arc. Vented case allows hot arc gasses to escape promoting extended switch life. Potential applications include large dc motors and generators.

3MN Series.

Features: Double-break circuitry • Power load switching capability to 15 A at 600 Vac • Motor handling capacity of 746 W [1 hp] at 240 Vac • Extended mechanical life to 10,000,000 cycles at 95 % survival • Space between terminals reduces possibility of shorting • Arc-resistant plastic

Benefits: Double-break standard basic switches provide easy gang mounting. Potential applications include mechanisms on machine tools, presses, and other industrial equipment.

6AS Series.

Features: Tandem switch assembly • Variety of actuators • Choice of circuitries, electrical ratings, and terminations • Field adjustable operating point on one or both basic switches

Benefits: Two standard basic switches ganged together and actuated by a single actuator. Potential applications include boiler controls or anywhere two circuits need to be controlled with one actuator.

Warranty. 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 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.**

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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.

For more information about Sensing and Control products, visit www.honeywell.com/sensing or call +1-815-235-6847. Email inquiries to info.sc@honeywell.com

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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.

⚠ WARNING
MISUSE OF DOCUMENTATION

- The information presented in this catalogue 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.

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