

# BASIC, TOGGLE & ROCKER SWITCHES

Product Range Guide

Honeywell



# FOR INNOVATION THAT'S WELL APART, THERE'S ONLY HONEYWELL.

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

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.

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 world-class product designs, technology integration, and customer-specific manufacturing.

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

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# SUBMINIATURE SEALED BASIC SWITCHES

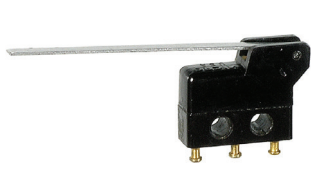
Although small in size, the HD, HD1, ZD and ZW Series are rated for controlling electrical loads ranging from logic-level to power-duty switching. When provided with integral wire leads, switches are sealed to IP67 and suitable for applications where the switch assembly would be exposed to liquids or environmental particulate contaminants from indoor or outdoor use.



SERIES	HD	HD1	ZD	ZW
Type	standard sealed	standard sealed	standard sealed	standard sealed
Amp rating	0.1 A & 3 A	0.1 A	0.1 A, 3 A	0.1 A, 6 A
Circuitry	SPDT, SPST-NO, SPST-NC	SPNC, SPNO	SPDT	SPDT, SPNO, SPNC
Operating force	130 gf max.	100 gf max., 130 gf max., 200 gf max.	130 gf to 195 gf	1.94 oz to 7.16 oz
Terminations	wired: straight, right, left solder: 2,5 mm x 2,5 mm with 1,3 mm dia. hole pcb: 0,6 mm x 3,5 mm pcb: left corner, right corner long solder: with 1,3 mm dia. hole straight solder: 2,0 mm x 2,5 mm	wired: downward, side pcb: straight, angle long solder clips special	solder, pcb straight, pcb left angle, pcb right angle, pre-wired	quick connect, solder, cable bottom/end, cable side exit
Actuators/levers	pin plunger, lever, simulated roller lever, formed lever	pin plunger, special	pin plunger, straight, sim. roller	pin plunger, straight, roller, sim. roller
Voltage	125 Vac, 12 Vdc	12 Vdc	125 Vac, 12 Vdc	125 Vac, 250 Vac
Approvals	UL, cUL, ENEC, CQC	UL, cUL, ENEC, CQC	UL, cUL, CE, ENEC	UL, cUL, CE, ENEC
Operating temperature range	terminal type S: -40°C to 125°C [-40°F to 257°F] wired type S (UL 1007/UL 1061): -20°C to 80°C [-4°F to 176°F] wired type S (UL 1430): -20°C to 85°C [-4°F to 185°F] wired type S (AVSS): -40°C to 85°C [-40°F to 185°F]	terminal type: -40°C to 85°C [-40°F to 185°F] wired type (UL 1007/UL 1061): -20°C to 80°C [-4°F to 176°F] wired type (UL 1430): -20°C to 85°C [-4°F to 185°F] wired type (AVSS): -40°C to 85°C [-40°F to 185°F]	-40°C to 85°C [-40°F to 185°F]	-25°C to 70°C [-13°F to 158°F] (with wires) -25°C to 120°C [-13°F to 248°F] (without wires)
Contacts	silver alloy	silver-plated copper alloy	silver, gold-plated silver	silver, gold-plated silver
Housing material	nylon	PBT	PBT polyester	PBT (polyester)
Measurements	Various: 14,70 mm W x 5,40 mm D [0.579 in W x 0.213 in D]	Various: 8,30 mm W x 5,30 mm D [0.327 in W x 0.209 in D]	10,6 mm H x 6,35 mm W x 19,8 mm L [0.42 in H x 0.25 in W x 0.78 in L]	9,0 mm H x 6,4 mm W x 19,8 mm L [0.36 in H x 0.25 in W x 0.78 in L]
Features	>500K mechanical operations; integrated pillars and mounting holes in switch housing; wiring, molding, and connector value-added capabilities available	slow-acting switching mechanism; integrated pillars and mounting holes in switch housing; wiring, molding, and connector value-added capabilities available	low energy or power-duty electrical ratings; gold-plated or silver contacts; PBT polyester housing material	IP67 available; low energy or power-duty electrical ratings; gold-plated or silver contacts; BT polyester housing material

# SUBMINIATURE UNSEALED BASIC SWITCHES

The package size of the subminiature switch is ideal for applications where space on the equipment is at a premium. The overall length is approximately 20 mm [0.78 in]. As with all snap-action switches, the audible click when actuated promotes ease of installation and set-up of the switches. A wide variety of integral stainless steel levers are available and when combined with the subminiature package size, may adapt the switch to a wide variety of applications.



SERIES	SM	SX	ZM	ZM1	ZX	
Type	premium	premium	standard (coil internal spring)	standard (flat internal spring)	standard	Type
Amp rating	0.1 A to 11 A	1 A to 7 A	0.1 A, 5 A, 10.1 A	0.1 A, 3 A, 6 A, 10.1 A, 16 A	0.1 A, 3 A	Amp rating
Circuitry	SPDT	SPDT, SPNO	SPST, SPDT, SPNO	SPDT, SPNO, SPNC	SPDT	Circuitry
Operating force	0.04 oz to 2 oz	0.71 oz to 6 oz	0.18 oz to 8.78 oz	12 gf to 355 gf	0.53 oz to 5.3 oz	Operating force
Terminations	quick connect, solder, pcb	quick connect, solder, pcb	quick connect, solder, pcb	quick connect, solder, pcb	solder, pcb snap-in, pcb left angle, pcb right angle	Terminations
Actuators/levers	pin plunger, straight, roller, sim. roller, paddle	pin plunger, straight, roller, sim. roller, offset flag, crossed roller	pin plunger, straight, roller, sim. roller, L-shaped	pin plunger, straight, roller, sim. roller, L-shaped	pin plunger, straight, sim. roller, special	Actuators/levers
Voltage	115 Vac, 125 Vac, 250 Vac, 30 Vdc	125 Vac, 250 Vac, 28 Vdc	125 Vac, 250 Vac, 30 Vdc	125 Vac, 250 Vac	125 Vac, 48 Vdc	Voltage
Approvals	UL, CSA, ENEC, CE	UL, CSA, ENEC, CE	UL, CSA, CE	UL, cUL, ENEC	UL, CSA	Approvals
Operating temperature range	-55°C to 121°C [-67°F to 250°F] high temperature options to 204°C [400°F]	-55°C to 121°C [-67°F to 250°F] high temperature options to 204°C [400°F]	-40°C to 120°C [-40°F to 248°F]	-40°C to 125°C [-40°F to 257°F]	-40°C to 65°C [-40°F to 149°F]	Operating temperature range
Contacts	silver, gold	silver, gold	silver, gold-plated silver, silver-tin-indium oxide	silver, gold-plated silver, gold-plated brass, silver-tin-indium oxide	silver, gold-plated silver	Contacts
Housing material	phenolic	phenolic	polyamide (nylon)	polyamide (nylon)	polyamide (nylon)	Housing material
Measurements	12,7 mm H x 6,35 mm W x 20,3 mm L [0.5 in H x 0.25 in W x 0.8 in L]	12,7 mm H x 6,35 mm W x 20,3 mm L [0.5 in H x 0.25 in W x 0.8 in L]	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]	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]	6,5 mm H x 5,7 mm W x 12,7 mm L [0.26 in H x 0.22 in W x 0.50 in L]	Measurements
Features	extended operating life; elongated mounting holes; MIL-PRF-8805 qualified listings available	extended operating life; elongated mounting holes; MIL-PRF-8805 qualified listings available	low energy or power-duty electrical ratings; gold-plated or silver contacts	low energy or power-duty electrical ratings; gold-plated or silver contacts	low energy or power-duty electrical ratings; gold-plated or silver contacts; polybutylene terephthalate housing	Features

MINIATURE  
SEALED AND  
UNSEALED  
BASIC  
SWITCHES

Honeywell's premium miniature sealed and unsealed basic switches have been designed for long-term reliability, up to 10 million cycles. These switches incorporate a snap-spring mechanism with more than 60 years of proven service and a high strength thermoplastic housing for durability. Available with custom-engineered solutions and multiple lever/termination options, Honeywell also makes available switches with RAST connectors.

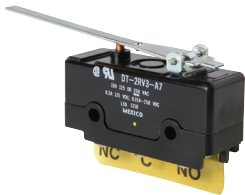


SERIES	V15W WATERTIGHT	V15W2 EXPLOSION-PROOF	V7	V15	V19	SERIES
Sealing	sealed	sealed	unsealed	unsealed	unsealed	Sealing
Type	watertight	zone 2 hazardous area rated	premium	standard	standard	Type
Amp rating	0.1 A, 5 A, 10 A	5 A, 1/10 HP @ 125 Vac/250 Vac	0.1 A to 25 A	5 A to 26 A	5 A, 16 A	Amp rating
Circuitry	SPDT, SPNO, SPNC	SPDT, SPNO, SPNC	SPDT, SPNO, SPNC	SPDT, SPNO, SPNC	SPDT, SPNO, SPNC	Circuitry
Operating force	15 g, 25 g, 50 g, 100 g, 200 g	100 g, 200 g	0.7 oz max. to 14.6 oz max.	US: ≥ 100 g (16 A to 26 A) AP: 15 g to 400 g (5 A to 26 A)	2 g to 200 g	Operating force
Terminations	preleaded; terminals: 4,8 mm x 0,8 mm or 4,8 mm x 0,5 mm	quick connect: 4,8 mm x 0,5 mm	quick connect, pc board, pcb straight angle left	quick connect, screw, solder, RAST 5 & 7	quick connect; RAST-5 250#; RAST-7 250#; RAST-2.5; straight PCB	Terminations
Actuators/levers	pin plunger, straight, roller, sim. roller	pin plunger, roller plunger; other actuators/levers available for special order	pin plunger, straight, roller, sim. roller	pin plunger, straight, roller, sim. roller	pin plunger, straight, roller, sim. roller	Actuators/levers
Voltage	125 Vac, 250 Vac, 30 Vdc, 48 Vdc	125 Vac, 250 Vac	125 Vac, 250 Vac, 277 Vac	125 Vac, 250 Vac	125 Vac, 250 Vac	Voltage
Approvals	UL, cUL, ENEC, CQC	UL, cUL, ENEC, CQC, IEC Ex	UL, CSA, ENEC	UL, cUL, ENEC, CQC	ENEC, CQC, UL, cUL	Approvals
Operating temperature range	-40°C to 85°C [-40°F to 185°F]	-25 °C to 85 °C [-13 °F to 185 °F]	-40°C to 150°C [-40°F to 302°F]	-25°C to 150°C [-13°F to 300°F]	code S: -25°C to 85°C [-13°F to 185°F] code T: -25°C to 125°C [-13°F to 257°F]	Operating temperature range
Contacts	silver nickel, gold-plated option	silver alloy, gold-plated thermal alloy	silver, silver cadmium oxide, gold	silver, silver cadmium oxide, gold-plated silver	cadmium-free silver alloy	Contacts
Housing material	PBT polyester thermoplastic	PBT polyester thermoplastic	PCT polyester thermoplastic	PBT polyester thermoplastic	PBT thermoplastic polyester	Housing material
Measurements	15,9 mm H x 10,3 mm W x 33 mm L [0.63 in H x 0.41 in W x 1.3 in L]	15,9 mm H x 10,3 mm W x 33 mm L [0.63 in H x 0.41 in W x 1.3 in L]	15,9 mm H x 10,2 mm W x 28,8 mm L [0.63 in H x 0.4 in W x 1.14 in L]	15,9 mm H x 10,3 mm W x 27,8 mm L [0.63 in H x 0.41 in W x 1.09 in L]	15,9 mm H x 10,3 mm W x 27,8 mm L [0.63 in H x 0.41 in W x 1.09 in L]	Measurements
Features	designed for harsh-duty, wash down areas; high sealing capability with an IP67 rating (pre-leaded only)	approved for use in Zone 2 hazardous locations with an IP67 rating (pre-leaded only)	extended mechanical and electrical life; wide temperature range; custom engineered solutions	broad range of electrical loads; wide temperature range; limited configuration options available	>1 M mechanical operations; cadmium-free contacts; RAST 2.5 termination and housing	Features



LARGE BASIC & SPECIALTY SWITCHES AND ACCESSORIES

Often ideal for high cost-of-failure applications. Low operating force and differential travel. Current ratings from 10 A to 25 A. Designed to withstand 100K operations at full load or 10M for mechanical life. Have been used in a variety of applications including irrigation, transportation, medical/dental, valves, office equipment, presses, machine tools, and HVAC.



SERIES	BZ/BA/BM/BE	DT	MT	3MN	6AS	AC	DM	
Type	premium large basic	specialty	specialty	specialty	specialty	specialty	specialty	Type
Amp rating	15 A (BZ), 22 A (BM), 20 A (BA), 25 A (BE)	10 A	10 A	15 A	10 A, 15 A, 20 A	5 A to 25 A	10 A, 16 A	Amp rating
Circuitry	SPDT	DPDT	SPDT	two circuit, double break (2 CKT DB)	SPDT	SPDT	SPDT, DPDT	Circuitry
Operating force	1.0 oz to 28 oz	7.0 oz to 10.0 oz	2.0 oz to 18 oz	7.0 oz to 20 oz	8 oz to 14 oz	–	4,17 N [15 oz] max.	Operating force
Terminations	quick connect, solder, screw	screw	screw	screw	solder, screw, A2, T	turret-solder, screw, flying leads	quick connect	Terminations
Actuators/levers	pin plunger, overtravel plunger, straight, roller, flexible roller leaf, flexible leaf	pin plunger, straight, roller	pin plunger, straight, roller	pin plunger	straight, roller, leaf	rod	bullet nose, concave, pull-to-cheat plungers	Actuators/levers
Voltage	115 Vac, 125 Vac, 250 Vac	250 Vac, 28 Vdc	125 Vac, 125 Vdc	480 Vac	125 Vac, 250 Vac, 480 Vac	125 Vac, 250 Vac, 480 Vac, 30 Vdc	125 Vac, 250 Vac, 277 Vac	Voltage
Approvals	UL, CSA, ENEC, CE (varies by model)	UL, CSA	UL, CSA	UL, CSA	UL	UL versions available	UL, CSA	Approvals
Operating temp. range	-55°C to 85°C [-67°F to 185°F] 121°C [250°F] and 204°C [400°F] options available	-55°C to 85°C [-67°F to 185°F]	-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]	-54°C to 121°C [-65°F to 250°F]	-37°C to 82°C [-35°F to 180°F]	Operating temp. range
Contacts	silver, silver cadmium oxide	silver	silver	silver	silver	silver	silver	Contacts
Housing material	general purpose phenolic	general purpose phenolic	arc resistant melamine	general purpose phenolic	general purpose phenolic	die-cast stainless steel bracket, stainless steel or polyester rod	polyester	Housing material
Measurements	25,4 mm H x 17,8 mm W x 50,8 mm L [1.0 in H x 0.7 in W x 2.0 in L]	25,4 mm H x 17,8 mm W x 50,8 mm L [1.0 in H x 0.7 in W x 2.0 in L]	25,4 mm H x 17,8 mm W x 50,8 mm L [1.0 in H x 0.7 in W x 2.0 in L]	25,4 mm H x 17,8 mm W x 50,8 mm L [1.0 in H x 0.7 in W x 2.0 in L]	20,1 mm H x 35,1 mm W x 49,3 mm L [0.79 in H x 1.38 in W x 1.94 in L]	varies by model	48,8 mm H x 31,8 mm W x 14,0 mm D [1.93 in H x 1.25 in W x 0.55 in D]	Measurements
Features	worldwide standard “large basic” switch; low operating force and travel; extended mechanical life; momentary or maintained actions	mounting interchangeability with BZ Series switches; permits several wiring combinations	mounting interchangeability with BZ/BA Series switches; arc-extinguishing design in contact area; arc-resistant case	double-break circuitry; extended mechanical life; space between terminals reduces possibility of shorting; arc-resistant plastic	tandem switch assembly; field adjustable operating point on one or both basic switches	cuts power when door/drawer is opened; momentary, maintained, or pull-to-cheat actuation; one or two SPDT switches	easy installation; momentary, alternate push-pull, or pull-to-cheat operation; expected mechanical life: 1 million operations	Features



SERIES	8MA1	8MA2	17MA1-B	3PA1	3PA28	3PA2	5PA1	5PA2	5PA3	
Type	adjustable mounting bracket	adjustable mounting bracket	conversion mounting bracket	die-cast zinc enclosure (side mount)	die-cast zinc enclosure (side mount)	die-cast zinc enclosure (flange mount)	plastic terminal enclosure	plastic terminal enclosure	plastic terminal enclosure	Type
Description	adjustment slot on the left	adjustment slot on the right	–	mounted from either side through 3,55 mm [0.140 in] dia. holes on 25,4 mm [1.0 in] centers	mounted from either side through 3,55 mm [0.140 in] dia. holes on 25,4 mm [1.0 in] centers. 1/2-14 NPSM internal thread conduit hub	switch secured in enclosure; two 4,37 mm [0.172 in] dia. holes in flange accept #8 screws for mounting on 41,3 mm [1.625 in] centers	used with solder terminal switches	use with screw terminal switches	used with either solder or screw terminal switches with auxiliary actuators assembled	Description
Housing material	steel	steel	corrosion-resistant metal	die-cast zinc	die-cast zinc	die-cast zinc	plastic	plastic	plastic	Housing material
Measurements	60,2 mm W x 21,3 mm H x 7,4 mm D [2.37 in W x 0.84 in H x 0.29 in D]	60,2 mm W x 21,3 mm H x 7,4 mm D [2.37 in W x 0.84 in H x 0.29 in D]	66,8 mm W x 19,0 mm D [2.63 in W x 0.75 in D]	74,8 mm W x 42,9 mm H x 25,4 mm D [2.95 in W x 1.69 in H x 1.00 in D]	74,8 mm W x 42,9 mm H x 25,4 mm D [2.95 in W x 1.69 in H x 1.00 in D]	74,8 mm W x 42,9 mm H x 25,4 mm D [2.95 in W x 1.69 in H x 1.00 in D]	52,8 mm W x 16,1 mm H [2.08 in W x 0.64 in H]	52,8 mm W x 20,2 mm H x 21,0 mm D [2.08 in W x 0.80 in H x 0.83 in D]	52,8 mm W x 20,2 mm H x 21,0 mm D [2.08 in W x 0.80 in H x 0.83 in D]	Measurements
Features	sturdy plated steel construction; fast, easy screwdriver adjustment; can be used with all standard basic switches		converts standard basic switches from side to top mount; snaps into mounting holes without tools	protects the switch from physical abuse and personnel from contact with exposed terminals			easy to use; screw and solder terminal versions; protect personnel from contact with exposed terminals			Features

# SPECIALTY AEROSPACE BASIC SWITCHES

Sealed switches are snap-action precision switches enclosed within a corrosion-resistant housing that seals the switch contacts from contamination. These sealed switches have often been used in aerospace, ordnance, industrial, marine, and transportation applications.



SERIES	SE/XE	HM	HS
Type	anodized aluminum	stainless steel	stainless steel, phenolic
Sealing	MIL-PRF-8805, symbol 3, watertight	MIL-PRF-8805, symbol 5, hermetic	MIL-PRF-8805, symbol 5, hermetic
Operating temperature range	-53°C to 105°C [-65°F to 221°F]	-65°C to 121°C [-85°F to 250°F] high temp available: 500°F	-54°C to 121°C [-65°F to 250°F]
Actuators/levers	auxiliary actuators available	integral lever; aux. actuators: leaf, roller leaf, straight, roller lever	integral lever
Termination	solder, leadwire	solder, leadwire	screw, leadwire
Circuitry	SPDT	SPDT	SPDT
Contacts	silver, gold, bifurcated gold	silver, gold, bifurcated gold	silver
Amp rating	0.5 A to 7 A	0.5 A to 3 A	1 A to 25 A
Approvals	CE, UL/CSA, MIL-PRF-8805 (selected listings)	MIL-PRF-8805 (select listings qualified)	UL, CSA, MIL-PRF-8805 (select listings qualified)
Measurements	SE: 19,05 mm H x 8,64 mm W x 22,35 mm L [0.75 in H x 0.34 in W x 0.88 in L] XE: 19,05 mm H x 8,13 mm W x 15,75 mm L [0.75 in H x 0.32 in W x 0.62 in L]	12,7 mm H x 6,35 mm W x 20,3 mm L [0.5 in H x 0.25 in W x 0.8 in L]	25,4 mm H x 17,8 mm W x 50,8 mm L [1.0 in H x 0.7 in W x 2.0 in L]
Features	watertight and military standard construction per MIL-PRF-8805; corrosion-resistant aluminum housing	hermetically sealed per MIL-PRF-8805; high temperature construction; reduced sensitivity to changes in altitude or pressure	hermetically sealed per MIL-PRF-8805; high temperature construction; reduced sensitivity to changes in altitude or pressure

# LIT & UNLIT PUSHBUTTON SWITCHES



Lighted or unlighted, pushbuttons are designed to enhance manual operation with a flexible and attractive interface. Snap-in surface products are easy to apply, operate, and maintain. Potential applications include control boards and panels found in industrial machinery, instrumentation, flight decks, and test equipment.

SERIES	PB
Panel area	20,32 mm x 35,56 mm [0.8 in x 1.4 in] max. (behind panel)
Display	8,1 mm [0.32 in] and other button sizes
Colored buttons	available
Mounting	threaded bushing
Termination	solder, H58, quick connect
Sealing	panel-sealed and hermetic-sealed switches available
Electrical	0.5 A to 5 A; 125/250 Vac, 28 Vdc
Approvals	UL, CSA, some meet MIL-PRF-8805/23
Features	up to four poles - double throw; compact size



SERIES	AML	MML
Panel area	20,5 mm [0.80 in] square; 20,5 mm x 30,5 mm [0.80 in x 1.20 in] rectangular	15 mm x 9,9 mm [0.59 in x 0.39 in] rectangular; 17,8 mm x 12,7 mm [0.70 in x 0.50 in] rectangular; 9,9 mm [0.39 in] square
Display	15,0 mm [0.59 in] square; 15 mm x 25 mm [0.59 in x 0.99 in] buttons	13 mm x 6,6 mm [0.51 in x 0.26 in] rectangular; 6,8 mm [0.27 in] square
Illumination	incandescent T-1-3/4 lamps – 6 V, 14 V, 28 V; LEDs – 2 V, 4 V, 5 V, 10 V, 15 V; neon lamps – 125 V, 250 V	T-1 – 5 V, 28 V; incandescent T-1-3/4 LEDs – 2 V, 2.5 V, 3 V
Behind panel	43,1 mm [1.7 in]	17,0 mm [0.67 in]
Mounting	snap-in individual, strip, matrix, sub-panel, pcb	snap-in individual, strip, sub-panel, pcb, bezel
Termination	solder, quick connect, pc board, push-on	solder, quick connect, printed wiring board
Sealing	optional panel seal	–
Electrical	electronic control: up to 3 A, 125 Vac	silver contacts: up to 1 A, 125 Vac; 6 A @ 125 Vac, 250 Vac; 2 A @ 30 Vdc; 1 A @ 125 Vdc; 1/10 hp @ 125 Vac; gold contacts: up to 0.25 A, 30 Vdc; UL rating 0.10 A
Approvals	UL, CSA, VDE, CE (selected products)	UL, CSA
Features	silver or gold contacts; full guard bezel option; lamp circuit independent of switch circuit	silver or gold contacts; pwb or panel-mount switches; multi-unit strip mounting available



SEALED & STANDARD TOGGLE & ROCKER SWITCHES



Hermetic and environmentally sealed toggle switches offer enhanced reliability with MICRO SWITCH technology. Can be used in a variety of applications where a panel-mount switch with an environment-proof rating is needed, including industrial equipment, military and commercial aviation, agriculture, process control, and medical.

SERIES	AT	TS	TW	ET	MT	NT	TL	
Type	stainless steel toggle	stainless steel, phenolic toggle	miniature stainless steel toggle	magnetically held toggle	miniature toggle	commercial-grade toggle	military-grade toggle	Type
Sealing	MIL-PRF-8805/26/98	–	qualified to MIL-DTL-83781	most listings qualified to MIL-S-5594	IEC 60529-2001, IP67, IP68	IP67/68; NEMA 3, 3R, 4 and 13	qualified to MIL-DTL-3950	Sealing
Operating temp.	various	-54°C to 71°C [-65°F to 160°F]	-65°C to 71°C [-85°F to 160°F]	-65°C to 71°C [-85°F to 160°F]	-40°C to 85°C [-40°F to 185°F]	-40°C to 71°C [-40°F to 160°F]	-65°C to 71°C [-85°F to 160°F]	Operating temp.
Actuator/lever	standard, locking, tab, special design	standard	standard, locking, special design, tab	standard, pull/push-to-unlock, tab	standard	standard, locking, special design, tab	standard, special design, tab, paddle, none	Actuator/lever
Action	2-position, momentary & maintained	2- or 3-position, momentary & maintained	2- or 3-position, momentary & maintained	2- or 3-position, momentary & maintained	2- or 3-position, momentary & maintained	2- or 3-position, momentary & maintained	2- or 3-position, momentary & maintained	Action
Mounting	15/32 in bushing, 1/4 in bushing, 3-hole, above panel	15/32 in bushing	bushing 15/32 in or 1/4 in	bushing 15/32 in	bushing 15/32 in	bushing 15/32 in	bushing 15/32 in	Mounting
Termination	solder, solder T2, screw, quick connect, leadwire, H58	solder, screw, quick connect	IWTS, solder, screw, quick connect, H58, T2	screw, leadwire, turret	solder	solder, screw, quick connect	IWTS, solder, screw, quick connect, leadwire	Termination
Circuitry	SPDT, DPDT, DPNO, 3PDT, 4PDT, 6PDT, 8PDT, 10PDT	SPDT, DPDT	SPST, SPDT, DPST, DPDT	SPDT, DPDT, 4PDT	SPST, SPDT, DPST, DPDT	SPST, SPDT, DPST, DPDT, 4PST, 4PDT	SPST, SPDT, DPST, DPDT 3PST, 3PDT, 4PST, 4PDT	Circuitry
Contacts	silver, gold, bifurcated gold	silver tin oxide and indium oxide	fine silver, gold-plated	fine silver	silver, gold-plated	silver alloy, gold-plated	silver alloy, gold-plated	Contacts
Amp rating	0.01 A to 5 A (resistive)	0.4 A to 10 A @ 126 Vac to 277 Vac 0.4 A to 20 A @ 0.5 Vac to 125 Vac	0.1 A to 5.0 A @ 0.5 Vdc to 28 Vdc; 0.1 A to 5.0 A @ 0.5 Vac to 115 Vac	7 A max. (resistive)	5 A, 28 Vdc (silver contacts) 100 mA, 28 Vdc (gold-plated contacts)	up to 20 A (resistive)	up to 20 A (resistive)	Amp rating
Measurements	various	various	49,78 mm H x 14,61 mm W x 14,61 mm D [1.96 in H x 0.575 in W x 0.575 in D]	51,56 mm H x 25,4 mm W x 25,4 mm D [2.03 in H x 1.0 in W x 1.0 in D]	43,1 mm H x 19,05 mm W x 14,55 mm D [1.697 in H x 0.75 in W x 0.573 in D]	58,4 mm H x 33,5 mm W x 22,6 mm D [2.3 in H x 1.32 in W x 0.89 in D]	58,4 mm H x 33,5 mm W x 22,6 mm D [2.3 in H x 1.32 in W x 0.89 in D]	Measurements
Approvals	qualified to MIL-PRF-8805/26/98	UL, CSA, CE	UL, qualified to MIL-DTL-83781	qualified to MIL-S-5594	UL, CE	UL, CSA, CE	UL, CSA, CE, qualified to MIL-DTL-3950	Approvals
Features	choice of sealed bushing; short behind panel depth	optional step-case design provides added space between terminals to prevent shorting	saves space and weight; sealed bushing versions	holding coil replaces mechanical holding mechanisms to maintain toggle in operate	high seal rating to protect from water ingress, 60k life cycle offers enhanced application life	completely sealed switching chamber; enhanced tactile feedback	environment-proof sealing; qualified to MIL-DTL-3950	Features



SERIES	AML	TP
Housing type	non-lighted, rectangle; 1 lamp circuit, rectangle; 2 lamp circuits, rectangle	non-lighted, rectangle
Circuitry	SPST, SPDT, DPST, DPST, 4PDT	SPST, SPDT, DPDT, 4PDT
Action	2 position, 3 position	2 position, 3 position
Mounting	snap-in panel	flush mount; above panel mount
Termination	solder, quick connect, printed circuit, push-on	screw
Ampere/voltage range	0.4 A to 2 A @ 0.5 Vdc to 30 Vdc; 0.4 A to 3 A @ 0.5 Vac to 125 Vac; 0.4 A to 2 A @ 0.5 Vac to 250 Vac	silver alloy
Light	no lamp installed; incandescent 6 V, 14 V, 28 V; neon	–
LED/neon color	red, yellow, green	–
Measurements	various	various
Approvals	–	UL recognized, CSA certified, CE approved
Features	silver and gold contacts; available with or without diode protection for LEDs; lamp circuit independent of switch circuit	2- or- 3-position operating action; various button colors; dust and splash-proof sealed; silver or gold contacts available; can be provided with or without buttons

## WARRANTY/REMEDY

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