

# MICRO SWITCH™

## Premium Large Snap-Action BZ/BA/BM/BE & 6AS Series

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### Snap-Action Switches & Accessories



#### DESCRIPTION

Accurate, reliable, and repeatable, MICRO SWITCH™ BZ/BA/BM/BE Series feature wide operating characteristics and enhanced life. These premium, large snap-action switches offer precision operation and sensitive differential travel.

Utilizing state-of-the-art manufacturing processes and quality controls, Honeywell has engineered premium, large snap-action switches that meet all international agency requirements. Some models have military qualifications.

#### FEATURES

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- Accepted world-wide with international agency approvals
- Various operating force and differential travel options
- Momentary or maintained contact action
- Watertight IP64 option
- Enhanced mechanical life up to 20,000,000 cycles
- Elongated mounting hole for easier, more accurate mounting
- Current rating ranges from 15 A to 25 A
- Choice of actuation, termination and operating characteristics
- Gold contacts available
- Precision operation – sensitive differential travel from 0,005 mm to 0,008 mm
- Internal flat spring design for improved performance and contact wiping ability
- High temperature options to 204 °C [400 °F]
- UL508 ratings offered
- Military standard construction – listings available with MIL-S-8805 qualification

MICRO SWITCH™ BZ/BA/BM/BE Series are often used for precision on/off applications, as well as end of limit, presence/absence, and manual operator interface functions.

Their engineering design meets most applications needs. Configuration options with BM, BA and BE switches give a broader range of operating and interface characteristics.

The MICRO SWITCH™ 6AS Series consists of two large premium BZ/BA/BM/BE snap-action switches ganged together and actuated by a single actuator. Field adjustable operating point is an option for one or both switches.




#### POTENTIAL APPLICATIONS

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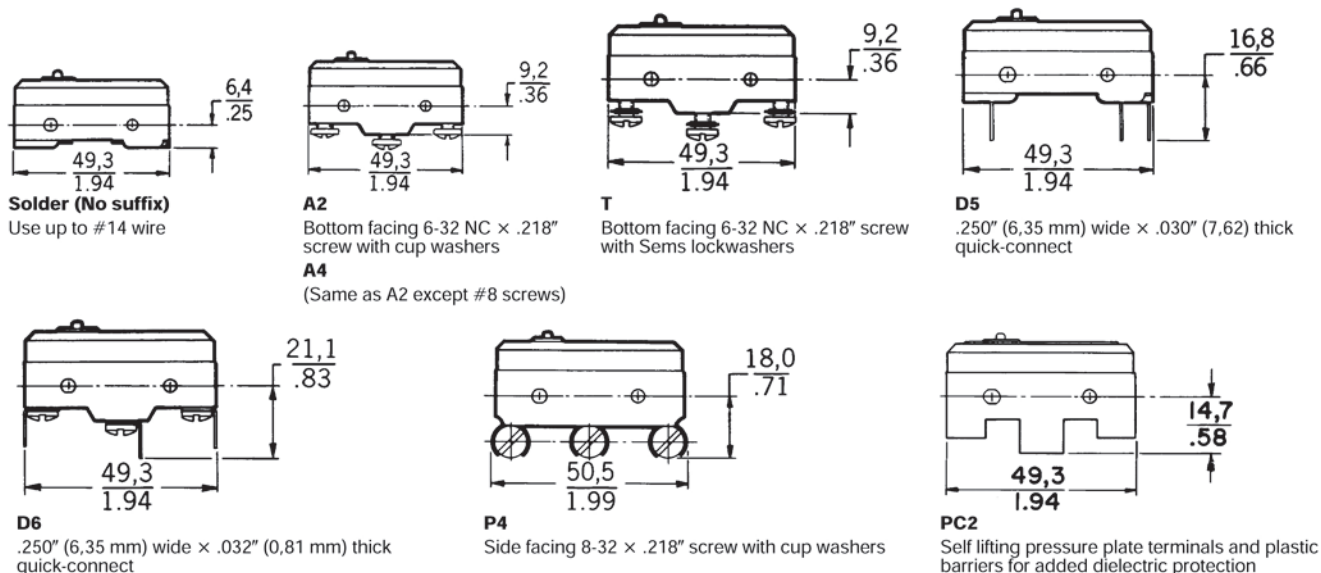
- Building controls and fire suppression systems
- Communication systems
- Door latching mechanisms
- Elevators/lifts
- Foot pedals
- HVAC
- Industrial kitchen equipment
- Irrigation systems
- Machine tools
- Manually operated devices
- Medical/dental equipment
- Semi-trailer trucks
- Surtran
- Test instruments
- Timing devices
- Valves

# MICRO SWITCH™ Premium Large Snap-Action BZ/BA/BM/BE Series

## SPECIFICATIONS

				
<b>SERIES</b>	<b>BZ</b>	<b>BA</b>	<b>BM</b>	<b>BE</b>
Potential applications	brake assemblies, building controls (sprinkler systems), communication systems, door latches, elevators/lifts, foot pedals, HVAC, industrial kitchen equipment, irrigation systems, timing devices, and valve positioning,			
Ampere rating	15 A	20 A	22 A	25 A
Circuitry	SPDT			
Operating force	1.0 oz to 28 oz			
Termination	quick connect, solder, screw			
Actuator	pin plunger, overtravel plunger, straight, roller, flexible leaf roller, flexible leaf			
Voltage	115 Vac, 125 Vac, 250 Vac			
Agency approvals	UL, CSA, ENEC, CE (varies by specific model)			
Operating temperature	-55 °C to 85 °C [-67 °F to 185 °F]			
Contacts	silver, silver cadmium oxide			
Housing	general purpose phenolic (options for IP64 watertight version)			
Sealing	Environment sealing option available			
Dielectric strength	2000 V between each terminal and ground			
Contact resistance	15 mOhm max.			
Insulation resistance	100 mOhm min.			
Vibration	1,5 mm peak-to-peak amplitude, frequency 10 Hz to 55 Hz, for two continuous hours			
Expected mechanical life	up to 20,000,000 cycles at 95% survival			
Expected electrical service life	100K operations at full load			
Rated frequency	45 Hz to 65 Hz			

## AVAILABLE TERMINALS



# Snap-Action Switches & Accessories

## STANDARD LEVER OPTIONS & DIMENSIONS mm/in

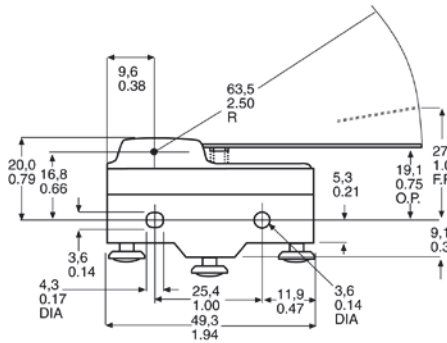
All products shown with screw terminals. See page 2 for available terminal options.

Lever	Dimensions	Lever	Dimensions
Pin plunger		Pin plunger	
Overtravel plunger		Overtravel plunger	
Bushing mount overtravel plunger		Bushing mount overtravel plunger	
Flexible leaf actuator		Flexible leaf actuator	

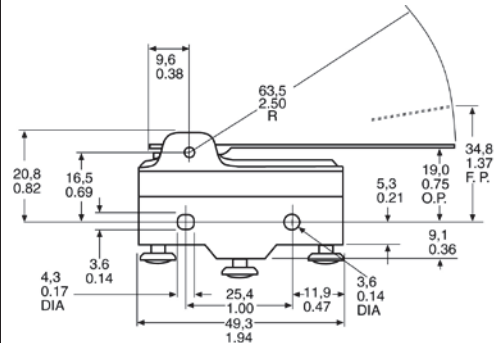
# MICRO SWITCH™ Premium Large Snap-Action BZ/BA/BM/BE Series

## STANDARD LEVER OPTIONS & DIMENSIONS mm/in

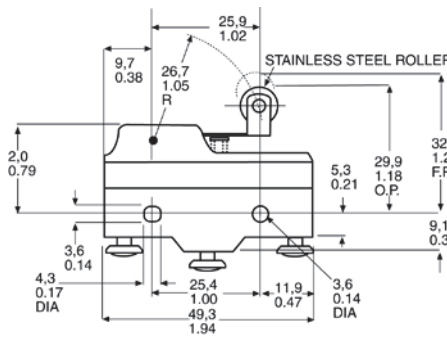
**Straight lever  
with external  
return spring**



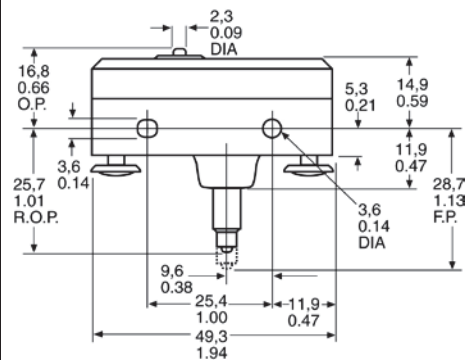
**Straight lever**



**Roller lever**



**Pin plunger  
with manual  
reset**



## 6AS SERIES – PREMIUM LARGE SNAP-ACTION TANDEM SWITCH ASSEMBLY



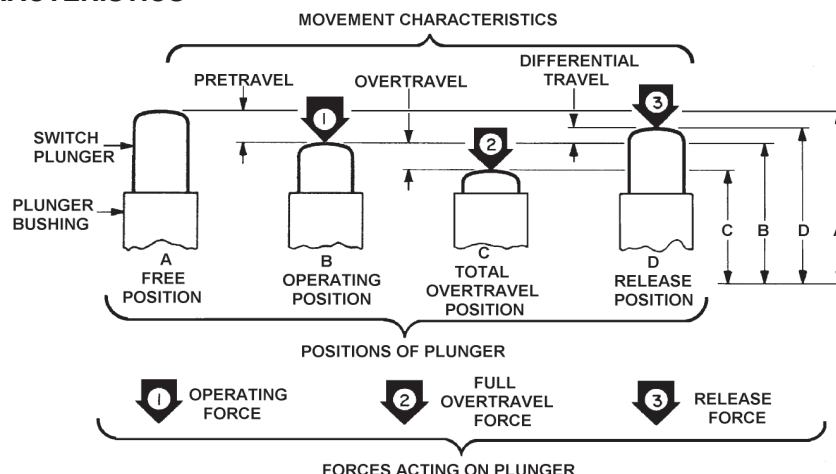
The MICRO SWITCH™ 6AS Series consists of two large premium BZ/BA/BM/BE snap-action switches ganged together and actuated by a single actuator. Operating characteristics are dependent upon the type of individual switches and actuators chosen. Field adjustable operating point on one or both basic switches.

Solder, A2, and T-type terminations available, along with straight, roller, and leaf levers. Mounting holes accept pins or screws of 3,53 mm [0.139 in] diameter.

Often used for boiler controls or anywhere two circuits need to be controlled by one actuator.

# Snap-Action Switches & Accessories

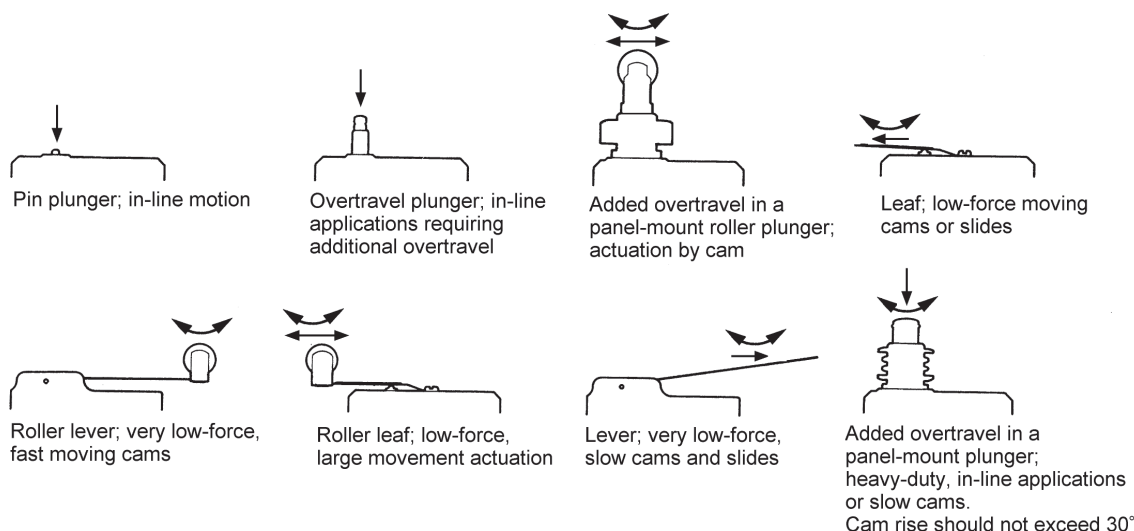
## OPERATING CHARACTERISTICS



<b>Differential Travel-DT</b>	Plunger or actuator travel from point where contacts “snap-over” to point where they “snap-back.”
<b>Free Position-FP</b>	Position of switch plunger or actuator when no external force is applied.
<b>Full Overtravel Force</b>	Force required to attain full overtravel of actuator.
<b>Operating Position-OP</b>	Position of switch plunger or actuator at which point contacts snap from normal to operated position. With flexible or adjustable actuators, the operating position is measured from the end of the lever or its maximum length. Location of operating position measurement shown on mounting dimension drawings.
<b>Operating Force-OF</b>	Amount of force applied to switch plunger or actuator to cause the contact “snap-over.” Note in the case of adjustable actuators, the force is measured from the maximum length position of the lever.
<b>Overtravel-OT</b>	Plunger or actuator travel safely available beyond operating position.
<b>Pretravel-PT</b>	Distance or angle traveled in moving plunger or actuator from free position to operating position.
<b>Release Force-RF</b>	Amount of force still applied to switch plunger or actuator at the moment contacts snap from operated position to non-operated position.
<b>Total Travel</b>	Distance from actuator free position to overtravel limit position.

## ACTUATORS

BA, BE, BM, and BZ standard snap-action switches use the actuators described:



# MICRO SWITCH™ Premium Large Snap-Action BZ/BA/BM/BE Series

## LARGE PREMIUM SWITCH SERIES NOMENCLATURE TREE (not all configurations available)

B	Z-	2	R	W	82255-	A2	S
Type & Contact	Switch type	Break distance (nominal)	Construction	Integral actuator	Misc. Variations (Numbers or Letters)	Terminal type	Snap spring mat'l (variation)
B Series Premium Basics SPDT	Z 15 A capacity, pin plunger 23.3 (0.917) from mounting hole	1 0.25 mm (0.01 in)	R Moving contact rivet construction	B Low overtravel plunger, Type A & E	0 Before other number— military construction	A2 Bottom facing #6 screws & cupwashers	S Stainless steel snap spring
substitute W Series for SPNC circuitry	A 20 A capacity, pin plunger 19 (0.750) from mounting hole	2 0.50 mm (0.02 in)	A Shorting bar circuitry Type Z switches only	D Low overtravel plunger, Type Z	1 Threaded bushing, panel mount Q-plunger	A4 Bottom facing #8 screws & cupwashers	
substitute Y Series for SPND circuitry	M 22 A capacity, pin plunger 23.3 (0.917) from mounting hole	3 0.91 mm (0.036 in)	S Shorting bar circuitry Type A switches only	DS Sealed low overtravel plunger, Type Z only	2 Variation of design	A22 A2 type without screws & cupwashers	
	E 25 A capacity, pin plunger 19 (0.750) from mounting hole	4 1.14 mm (0.045 in) (MF-4R only)	K Resilient type N.C. contacts	L Lead actuator Type A & Z only	4 On W-lever, light force var. (no spring)	A41 A4 type without screws & cupwashers	
		5 1.27 mm (0.050 in) Type A switches only	G Make-before-break switches	N High overtravel plunger/sealed boot	5 Used with other 5s, denotes sealed conns.	A46 A4 type #8 screws and lock washers	
		7 1.78 mm (0.07 in) Type Z switches only	Y Split contact switches Type Z switches only	Q High overtravel plunger, Type A & Z	81 On Q-plunger, roller 90° to major axis	D1 80° QC used with flat base w/o slots	
				S Medium overtravel plunger, Type Z only	82 On Q-plunger, repac. for die-cast switches	D5 45° QC used with flat base	
				V Rigid lever Type A & E only	99 On W-lever, adj. O.P. (usually w/ 6)	D6 90° QC used with A2 (step) base	
				W Rigid or resilient lever, Type Z only	244 High temp. const. Diff. snap spring Lower elect. rating	P1 (left) Side facing #8 screw w/ cupwasher solder lug base	
				M Reverse actuating lever	5551 General use sealed construction	P2 Same as P1, except lacing right	
				QW Omnidirectional "wobble" lever	882 Short W-lever with roller	P4 (left) Side facing #8 screw w/ cupwasher integral construction	
					72 Gold contacts	P5 Same as P4, except lacing right	
					722	T Bottom facing #6 screws/lockwashers	

**NOTES**  
 \* Min. distance between separated mating contacts  
 in fully open position (nominal values).  
 \*\* Some versions have lower electrical ratings.  
 \*\*\* Except BZ-431 and BZ-RZ switches.



# Snap-Action Switches & Accessories

## LARGE SNAP-ACTION SWITCH ACCESSORIES

### Brackets



	8MA1	8MA2	17MA1-B
Description	Adjustable mounting bracket with adjustment slot on left	Adjustable mounting bracket with adjustment slot on right	Conversion mounting bracket
Housing material	Steel	Steel	Corrosion-resistant metal
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]		66,8 mm W x 19,0 mm D [2.63 in W x 0.75 in D]
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; corrosion resistant; snaps into switch mounting holes without tools

### Die-cast zinc enclosures



	3PA1	3PA28	3PA2
Description	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
Housing material	die-cast zinc enclosure (side mount)	die-cast zinc enclosure (side mount)	die-cast zinc enclosure (flange mount)
Measurements	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]
Features	protects the switch from physical abuse and personnel from contact with exposed terminals		

### Plastic thermal enclosures



	5PA1	5PA2	5PA3
Description	Plastic terminal enclosure used with solder terminal switches	Plastic terminal enclosure use with screw terminal switches	Plastic terminal enclosure used with either solder or screw terminal switches with auxiliary actuators assembled
Housing material	plastic	plastic	plastic
Measurements	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]
Features	easy to use; screw and solder terminal versions; protect personnel from contact with exposed terminals		

## **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.**

## **WARNING**

### **MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- 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.**

## **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.

## **SALES AND SERVICE**

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

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