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### **Sensing and Control**

Honeywell Inc.

11 West Spring Street

Freeport, Illinois 61032

# Basic Switches

## Environment Sealed

SE/XE Series



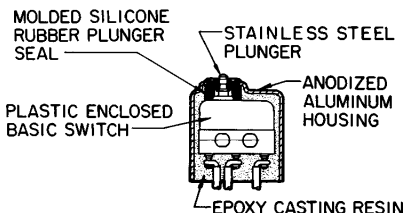
### GENERAL INFORMATION

SE and XE switches are the smallest environment-sealed switches offered by MICRO SWITCH. Both types enclose basic switches within a corrosion resistant aluminum housing to seal precision switch contacts from contamination. SE switches include a SM basic switch, and XE switches include the smaller SX basic switch.

Switches held depressed for extended periods of time at temperature extremes may experience retarded plunger return upon deactuation. Where such a condition exists in the application, contact the 800 number for special designs that are available.

### FEATURES

- Watertight seal per enclosure design symbol 3, MIL-S-8805
- Power load switching capability up to 7 amps
- Temperature tolerance up to +221°F (105°C)
- High temperature construction for use to +300°F (149°C)
- Several auxiliary actuators
- Choice of termination
- Military standard construction with listings qualified to MIL-S-8805
- All 4SE switches are UL recognized and CSA certified
- 4XE switches are UL recognized



### ELECTRICAL RATINGS

Circuitry	Electrical Rating Code	
Single-Pole Double-Throw	<b>A</b> 5 amps res., 3 amps ind., (sea level), 5 amps res., 2.5 amps ind., (50,000 feet) 28 vdc. 5 amps res., 5 amps ind., 125 or 250 vac, 60 Hz.	<b>D</b> UL Rating 7 amps, 250 vac 60 Hz
	<b>B</b> UL and CSA Rating 5 amps, 250 vac, 60 Hz	<b>E</b> 7 amps res., 4 amps ind., (sea level), 7 amps res., 2.5 amps ind., (50,000 feet), 28 vdc.
	<b>C</b> 7 amps res., 4 amps ind., (sea level), 7 amps res., 2.5 amps ind., (50,000 feet), 28 vdc. 7 amps res., 4 amps ind., (sea level), 115 vac, 400 Hz	<b>R</b> 1 amp res., 0.50 amp ind., 28 vdc.

**Characteristics:** O.F. — Operating Force; R.F. — Release Force; P.T. — Pretravel; O.T. — Overtravel; D.T. — Differential Travel; O.P. — Operating Position

### SE SWITCHES ORDER GUIDE

Catalog Listing	Recommended For	Electrical Rating Code	Characteristics					
			O.F. Newtons ounces	R.F. min. Newtons ounces	P.T. max. mm inches	O.T. min. mm inches	D.T. max. mm inches	O.P. mm inches
1SE1	Most applications	A	1,39-4,73 5-17	1,11 4	1,27 .050	0,08 .003	0,1 .004	10,8 .425
1SE2	SPST — Normally-closed	A	1,39-4,73 5-17	1,11 4	1,27 .050	0,08 .003	0,1 .004	10,8 .425
1SE3	SPST — Normally-open	A	1,39-4,73 5-17	1,11 4	1,27 .050	0,08 .003	0,1 .004	10,8 .425
4SE1	UL and CSA listing and UL and CSA listed lead wire	B	1,39-4,73 5-17	1,11 4	1,27 .050	0,08 .003	0,1 .004	10,8 .425
5SE1	Oil resistant Fluorosilicone seal	A	1,39-4,73 5-17	1,11 4	1,27 .050	0,08 .003	0,1 .004	10,8 .425
7SE1	Lower force	A	1,11-2,22 4-8	0,56 2	1,27 .050	0,08 .003	0,1 .004	10,8 .425
12SE4-T	High return force	A	1,39-5,28 5-19	1,11 4	1,27 .050	0,08 .003	0,1 .004	10,8 .425
1SE1-T	For customer leading	A	1,39-4,73 5-17	1,11 4	1,27 .050	0,08 .003	0,1 .004	10,8 .425

1 foot leads (other lengths available)



Fig. 1



Fig. 2

# Basic Switches

## Environment Sealed

SE/XE Series

Characteristics: O.F. — Operating Force; R.F. — Release Force;  
 P.T. — Pretravel; O.T. — Overtravel; D.T. — Differential Travel;  
 O.P. — Operating Position

### AUXILIARY ACTUATORS FOR SE SWITCHES ORDER GUIDE

(Switches are not included with actuators)

Catalog Listing	Description	Actuator Length A mm inches	Characteristics measured with actuators mounted to a 1SE1						
			O.F. max. Newtons ounces	R.F. min. Newtons ounces	P.T. approx. mm inches	O.T. min. mm inches	D.T. max. mm inches	O.P. mm inches	F.P. mm inches
JE-1	Straight leaf (mounting hardware included)	16,8 .66	3,34 12	0,56 2	3,81 .150	0,38 .015	0,64 .025	11,2 .440	15±0,76 .590±.030
JE-4	Roller leaf. Roller turned 90° to switch axis (mounting hardware included).	16,8 .66	3,34 12	0,56 2	3,81 .150	0,38 .015	0,64 .025	16,3 .640	20,1 .790 approx.
JE-5	Roller leaf (mounting hardware included)	14,2 .560	3,34 12	0,56 2	3,81 .150	0,38 .015	0,64 .025	16,3 .640	20,1±0,76 .790±.030
JE-17	Roller leaf. Reversed position (mounting hardware included)	14,2 .560	3,34 12	0,56 2	3,81 .150	0,38 .015	0,64 .025	16,3 .640	20,1±0,76 .790±.030
JE-21	Roller lever	13,7 .540	1,67 6	0,28 1	2,54 .100	0,25 .010	0,41 .016	16,3 .640	18,8±0,76 .740±.030
JE-22	Tandem Roller Lever	17,8 .700	4,73 17	1,11 4	2,54 .100	0,15 .006	0,3 .012	16,8±1,3 .660±.050	19,3±1,3 .760±.050



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7

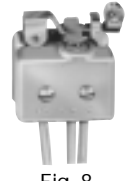


Fig. 8

Sealed/High Temperature

# Basic Switches

## Environment Sealed

SE/XE Series

Characteristics: O.F. — Operating Force; R.F. — Release Force; P.T. — Pretravel; D.T. — Differential Travel; O.P. — Operating Position.

### XE SWITCHES ORDER GUIDE

Catalog Listing	Recommended For	Electrical Rating Code	Characteristics						
			O.F. max. Newtons ounces	R.F. max. Newtons ounces	P.T. max. mm inches	O.T. min. mm inches	D.T. max. mm inches	O.P. mm inches ±.020 (0,51)	
1XE1 (MS27994-1)	Most applications MIL-S-8805 requirements	C	1,39-4,73 5-17	1,11 4	1,27 .050	0,1 .004	0,13 .005	10,8 .425	
1XE201 (MS27994-4)	General Use MIL-S-8805 requirements MIL-W-22759/11 wire	C	1,39-4,73 5-17	1,11 4	1,27 .050	0,1 .004	0,13 .005	10,8 .425	
1XE3	SPST-Normally Open	C	1,39-4,73 5-17	1,11 4	1,27 .050	0,1 .004	0,13 .005	10,8 .425	
1XE301 (MS27994-5)	Gold Contacts MIL-W-22759/11 wire	R	1,39-4,73 5-17	1,11 4	1,27 .050	0,1 .004	0,13 .005	10,8 .425	
4XE1	UL listing and UL and CSA listed leadwire	D	1,39-4,73 5-17	1,11 4	1,27 .050	0,1 .004	0,13 .005	10,8 .425	
5XE1	Oil resistant Fluorosilicone seal	C	1,39-4,73 5-17	1,11 4	1,27 .050	0,1 .004	0,13 .005	10,8 .425	
14XE1	Less operating force Use to +300°F (149°C)	E	2,50 9 max.	0,56 2	0,76 .030	0,1 .004	0,13 .005	10,9 .430	
14XE1-T	For customer leading Use to +300°F (149°C)	E	2,50 9 max.	0,56 2	0,76 .030	0,1 .004	0,13 .005	10,9 .430	
1XE1-T (MS27994-3)	For customer leading	C	1,39-4,73 5-17	1,11 4	1,27 .050	0,1 .004	0,13 .005	10,8 .425	

1 foot leads (other lengths available)



Fig. 9



Fig. 10

Characteristics: O.F. — Operating Force; R.F. — Release Force; P.T. — Pretravel; O.T. — Overtravel; D.T. — Differential Travel; O.P. — Operating Position; F.P. — Free Position.

### AUXILIARY ACTUATORS FOR XE SWITCHES ORDER GUIDE (Switches are not included with the actuators)

Catalog Listing	Description	Characteristics measured with actuator mounted on a 1XE1						
		O.F. max. Newtons ounces	R.F. min. Newtons ounces	P.T. approx. mm inches	O.T. min. mm inches	D.T. max. mm inches	O.P. mm inches	F.P. mm inches
JM-1	Straight leaf	5,84 21	0,83 3	3,18 .125	0,23 .009	0,3 .012	10,8±0,76 .425±.030	14±0,76 .550±.030
JM-5	Roller leaf	5,84 21	0,83 3	3,18 .125	0,23 .009	0,3 .012	15,9±0,89 .625±.035	19,1±0,89 .750±.035



Fig. 11



Fig. 12

Sealed/High Temperature

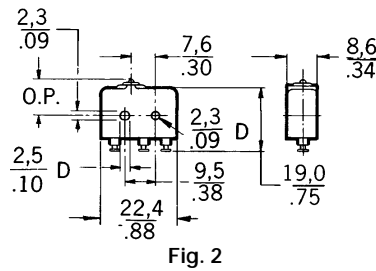
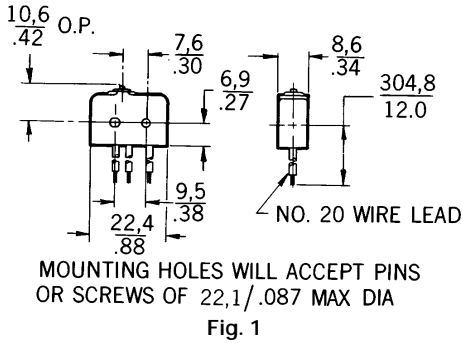
# Basic Switches

## Environment Sealed

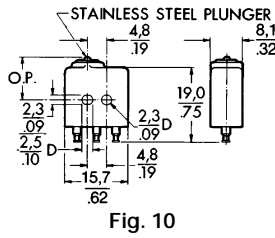
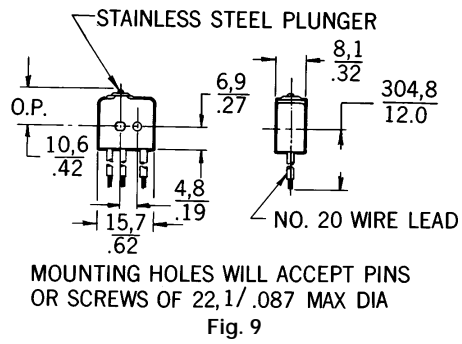
# SE/XE Series

MOUNTING DIMENSIONS (For reference only)

### SE ENVIRONMENT PROOF SWITCHES

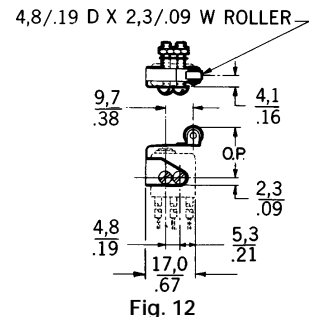
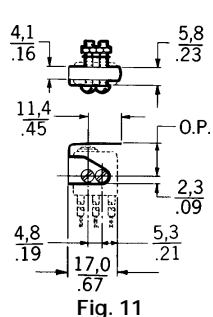
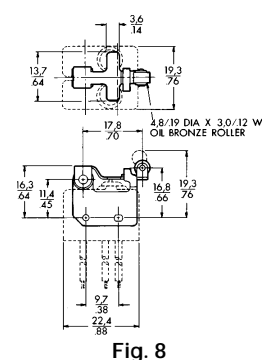
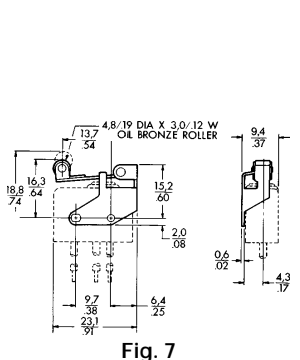
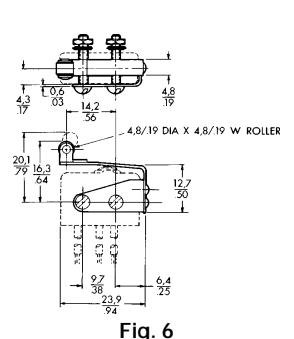
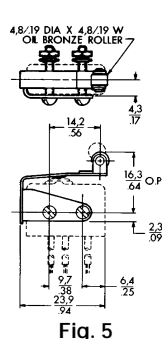
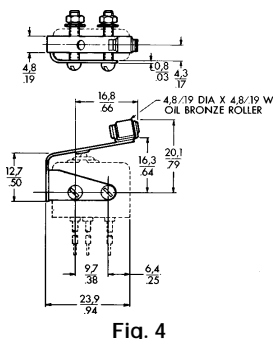
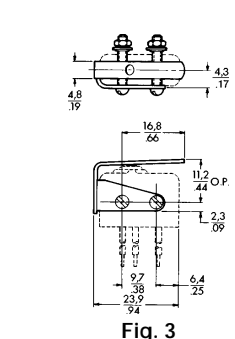


### XE ENVIRONMENT PROOF SWITCHES



Dimensions shown are for reference only. For actual dimensions, contact the 800 number.

### AUXILIARY ACTUATORS



Sealed/High Temperature