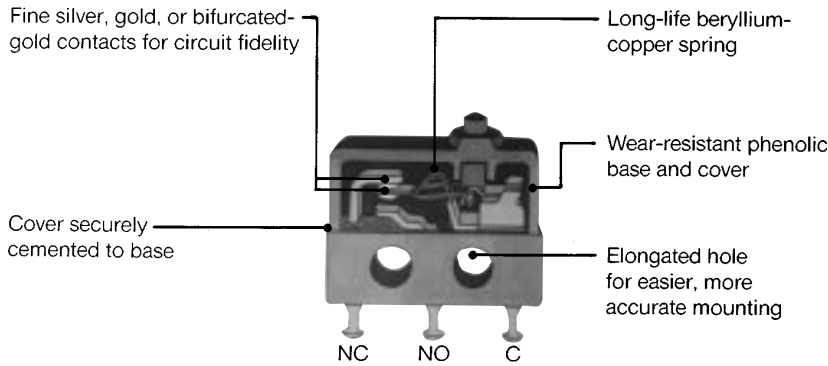


# Basic Switches

## Subminiature

### CUT-A-WAY 1SX SUBMINIATURE BASIC SWITCH



### FEATURES

- Low operating force to 3 oz. (85 grams) maximum
- Sensitive differential travel as low as .001 inch maximum
- Power load switching capability up to 7 amperes—silver contacts
- Optional gold contacts for low energy applications
- Optional bifurcated gold contacts for maximum reliability
- Long mechanical life up to 10,000,000 cycles—95% survival for 11SX series 1,000,000 cycles—95% survival for 1SX series
- Temperature tolerance  $-65^{\circ}$  to  $+250^{\circ}\text{F}$  ( $-54$  to  $121^{\circ}\text{C}$ ) on standard construction
- High temperature designs for up to  $+400^{\circ}\text{F}$  ( $204^{\circ}\text{C}$ ) for 100 hours
- Variety of integral and auxiliary actuators
- Choice of several terminal styles
- MIL-S-8805 qualified products available
- UL recognized File #E12252, CSA certified file # LR41372

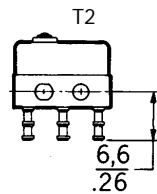
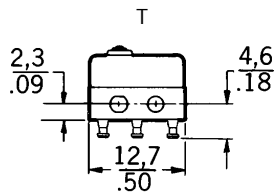
### AVAILABLE TERMINALS

SX switches are available with several types of terminations. The T and T2 terminals provide easy solder lead wire attachment. The H58 terminal offers the simplicity of quick-connect and mate with AMP .058-inch receptacles. Pin terminals allow easy attachment to printed circuit boards.

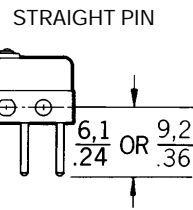
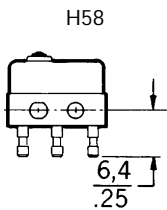
### GENERAL INFORMATION

SX subminiature basic switches are small size precision snap-action switches from MICRO SWITCH. These switches are ideal where savings in space and weight are important. Unless otherwise noted, all listings have silver contacts.

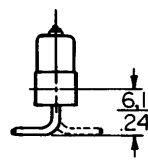
Miniature/  
Subminiature



Mounting torque Round head 2-56 UNC 438 screws—2 inch pounds max.



H391, H392  
90° FORMED PIN



Mate with Amp Inc. Part No. 640024-1 Std.

Dimensions shown are for reference only

Key:  $0,0 = \text{mm}$   
 $0.00 = \text{inches}$

This section covers only **40** of our most popular SX Series catalog listings. If you don't find what you're looking for, it's likely one of the approximately **200** other active SX listings will meet your needs. Contact the 800 number.

# Basic Switches

## Subminiature

SX Series

### ORDER GUIDE by ascending electrical capability

PIN PLUNGER

Catalog Listing	Recommended for	Electrical Data and UL Code Page 20	O.F. max. 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
11SX91-T	Logic level loads 5VDC, 2mA; SPNO	At Left	1,39 5	0,28 1	0,51 .020	0,1 .004	0,1 .004	8,13 .320
12SX2-T	Best reliability (Bifurcated gold contacts)	.010 Amp H	0,7 to 1.39 2.5 to 5	0,28 1	0,51 .020	0,1 .004	0,051 .002	8,13 .320
3SX1-T	Applications requiring gold contacts (1SX type)	1 Amp D	1,39 5	0,28 1	0,51 .020	0,1 .004	0,13 .005	8,13 .320
12SX1-T	Best reliability with higher current rating (Bifurcated gold contacts)	1 Amp D	1,39 5	0,28 1	0,51 .020	0,1 .004	0,076 .003	8,13 .320
12SX3-T	Lowest differential travel with bifurcated gold contacts	1 Amp H	1,39 5	0,28 1	0,51 .020	0,1 .004	0,025 .001	8,13 .320
13SX21-T	Applications requiring gold contacts. 11SX type.	1 Amp D	1,39 5	0,28 1	0,51 .020	0,1 .004	0,051 .002	8,13 .320
23SX39-T (MS24547-2)	MIL-S-8805 applications requiring gold contacts +180°F (82°C) max. use	1 Amp D	1,39 5	0,28 1	0,51 .020	0,1 .004	0,13 .005	8,13 .320
23SX39-T2 (MS24547-5)	As above, with T2 terminals	1 Amp D	1,39 5	0,28 1	0,51 .020	0,1 .004	0,13 .005	8,13 .320
93SX39-T M8805/109-03	.156" wide, with gold contacts +180°F (82°C)	1 Amp D	1,39 5	0,28 1	0,51 .020	0,1 .004	0,13 .005	8,13 .320
411SX21-T M8805/106-01	+400°F (204°C) for 100 hours	G	1,39 5	0,28 1	0,51 .020	0,1 .004	0,13 .005	8,13 .220
413SX21-T M8805/106-02	+400°F (204°C) for 100 hours	L	1,39 5	0,28 1	0,51 .020	0,1 .004	0,051 .002	8,13 .220
11SX1-T	Lowest differential travel	3 Amps E	0,97 3.5	0,21 0.75	0,51 .020	0,1 .004	0,025 .001	8,13 .320
11SX21-T	Most applications	5 Amps A	0,7 to 1,39 2.5 to 5	0,28 1	0,51 .020	0,1 .004	0,051 .002	8,13 .320
11SX22-T	For use in sealed enclosures.	5 Amps A	1,39 5	0,28 1	0,51 .020	0,1 .004	0,076 .003	8,13 .320
17SX21-T	Best stability under varying humidity. 11SX type.	5 Amps A	1,39 5	0,28 1	0,51 .020	0,1 .004	0,051 .002	8,13 .320
1SX1-T	Up to 7 amps load handling	7 Amps B	1,39 5	0,28 1	0,51 .020	0,1 .004	0,13 .005	8,13 .320
1SX12-T	Low differential travel	7 Amps C	1,39 5	0,28 1	0,51 .020	0,1 .004	0,051 .002	8,13 .320
1SX48-T	Added overtravel	7 Amps B	1,39 5	0,28 1	0,51 .020	0,25 .010	0,13 .005	8,13 .320
2SX1-T	Lower force	7 Amps B	0,83 3	0,28 1	0,51 .020	0,1 .004	0,13 .005	8,13 .320
4SX1-T	Operating in temperature to +400°F (204°C) for 100 hours	7 Amps I	1,39 5	0,28 1	0,51 .020	0,1 .004	0,13 .005	8,13 .320
21SX1-T	Best stability under varying humidity (1SX type)	7 Amps B	1,39 5	0,28 1	0,51 .020	0,1 .004	0,13 .005	8,13 .320
21SX39-T (MS24547-1)	MIL-S-8805 application requirements +180°F (82°C)	7 Amps F	1,39 5	0,28 1	0,51 .020	0,1 .004	0,13 .005	8,13 .320
21SX39-T2 (MS24547-4)	MIL-S-8805 application requirements +180°F (82°C)	7 Amps F	1,39 5	0,28 1	0,51 .020	0,1 .004	0,13 .005	8,13 .320
91SX39-T M8805/109-01	.156" wide version of standard SX +180°F (82°C)	7 Amps F	1,39 5	0,28 1	0,51 .020	0,1 .004	0,13 .005	8,13 .320

\*±0,38 mm  
±.015 in.



Dim. Dwg. Fig. 1  
(Except Fig. 2  
for 91SX39-T  
and 93SX34-T)

# Basic Switches

## Subminiature

SX Series

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

### ORDER GUIDE

#### INTEGRAL LEVERS



Dim. Dwg. Fig. 3

Catalog Listing	Description	Electrical Data And UL Code Page 20	O.F. max. 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
311SX1-T	.135 inch (3,43 mm) straight lever	5 Amps A	0,49 1.76	0,09 .32	1,65 .065	0,36 .014	0,51 .020	8,43±1,14 .332±.045
313SX1-T	As above with gold contacts	1 Amp D	0,49 1.76	0,09 .32	1,65 .065	0,36 .014	0,51 .020	8,43±1,14 .332±.045



Dim. Dwg. Fig. 3

311SX2-T	.505 inch (12,8 mm) straight lever	5 Amps A	0,31 1.1	0,05 .18	2,92 .115	0,64 .025	0,89 .035	8,26±1,91 .325±.075
313SX2-T	As above with gold contacts	1 Amp D	0,31 1.1	0,05 .18	2,92 .115	0,64 .025	0,89 .035	8,26±1,91 .325±.075



Dim. Dwg. Fig. 4

311SX3-T	.965 inch (24,5 mm) straight lever	5 Amps A	0,20 .71	0,03 .11	4,70 .185	0,61 .024	1,52 .060	7,75±2,92 .305±.115
313SX3-T	As above with gold contacts	1 Amp D	0,20 .71	0,03 .11	4,70 .185	0,61 .024	1,52 .060	7,75±2,92 .305±.115



Dim. Dwg. Fig. 5

311SX4-T	.042 inch (1,1 mm) simulated roller lever	5 Amps A	0,58 2.1	0,11 .39	1,27 .050	0,25 .010	0,38 .015	14,15±0,91 .557±.036
313SX4-T	As above with gold contacts	1 Amp D	0,58 2.1	0,11 .39	1,27 .050	0,25 .010	0,38 .015	14,15±0,91 .557±.036



Dim. Dwg. Fig. 6

311SX5-T	.459 inch (11,7 mm) simulated roller lever	5 Amps A	0,31 1.1	0,05 .18	2,67 .105	0,56 .022	0,89 .035	14,86±1,65 .585±.065
313SX5-T	As above, with gold contacts	1 Amp D	0,31 1.1	0,05 .18	2,67 .105	0,56 .022	0,89 .035	14,86±1,65 .585±.065

Miniature/  
Subminiature

# Basic Switches

## Subminiature

SX

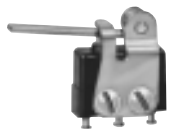
**Characteristics:** O.F. – Operating Force; R.F. – Release Force; P.T. – Pretravel; O.T. – Overtravel; D.T. – Differential Travel; O.P. – Operating Position; F.P. – Free Position.

\*All characteristics are taken with actuator assembled on Catalog Listing 1SX1-T as shown.

### ORDER GUIDE

#### AUXILIARY ACTUATORS

Switches are not included with actuators.



Dim. Dwg. Fig. 7

Catalog Listing	Description	Actuator Length "A" mm inches	O.F. max. newtons ounces	R.F. min. newtons ounces	P.T. mm inches	O.T. mm inches	D.T. max. mm inches	O.P.†† mm inches	F.P. mm inches
JX-20	Straight lever	18,3 .72	0,28 1 approx.	0,04 .14	—	0,76 .030 approx.	0,76 .030 approx.	10,8 .425 approx.	12,3 .485 approx.
JX-219	Straight lever (For higher temp.)	18,3 .72	0,28 1	0,04 .14	—	0,76 .030 approx.	0,76 .030 approx.	10,8 .425 approx.	12,3 .485 approx.



Dim. Dwg. Fig. 8

JX-25	Roller lever	16,5 .65	0,42 1.5	0,04 1.4	—	0,51 .020	0,76 .030	14,9=1,14 .585=.045	168 .660 max.
JX-220	Roller lever (For higher temp.)	16,5 .65	0,42 1.5	0,04 .14	—	0,51 .020	0,76 .030	14,9=1,14 .585=.045	16,8 .660 max.



Dim. Dwg. Fig. 9

JX-40	Straight leaf	9,4 .37†	1,95 7	0,56 2	.225 approx.	0,38 .015	0,64 .025	7,5 .295	12,3 .485 ref.
JX-95	Straight leaf (For higher temp.)	9,4 .37†	1,95 7	0,56 2	.225 approx.	0,38 .015	0,64 .025	7,5 .295	12,3 .485 ref.
JX-41**	Reverse leaf	9,4 .37†	1,67 6	0,28 1	.110 approx.	0,38 .015	0,64 .025	7,5 .295	9,4 .370 ref.



Dim. Dwg. Fig. 9

JX-45	Roller leaf	6,1 .24†	1,95 7	0,28 1	.225 approx.	0,38 .015	0,64 .025	12,2 .480	16,5 .650 ref.
JX-96	Roller leaf (For higher temp.)	6,1 .24†	1,95 7	0,28 1	.225 approx.	0,38 .015	0,64 .025	12,2 .480	16,5 .650 ref.
JX-51**	Reverse roller leaf	7,6 .30†	1,67 6	0,56 2	.110 approx.	0,38 .015	0,64 .025	12,8 .505	14,7 .580 ref.



Dim. Dwg. Fig. 10

JX-4	Tandem leaf	7,9 .31	4,17 15	0,83 3	.065 approx.	0,20 .008	0,76 .030	7,6 .300	9,40 .370 ref.
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\*\*Switch is mounted with plunger end reversed from JX-40.  
†"A" measurement is from center of mounting hole nearest tip of lever to the point indicated on drawing.

NOTE: Above actuators should be used at temperatures below +300°F (149°C); except listings JX-95, JX-96, JX-219 and JX-220 are for use with the 4SX1-T to 400°F. (204°C).

Except where stated †† ±0,76 mm ±.030 in.

# Basic Switches

## Subminiature

SX Series

### MOUNTING DIMENSIONS (for reference only)

#### PIN PLUNGER

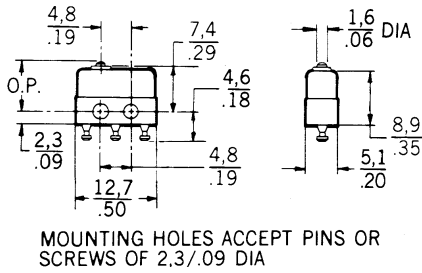


Fig. 1

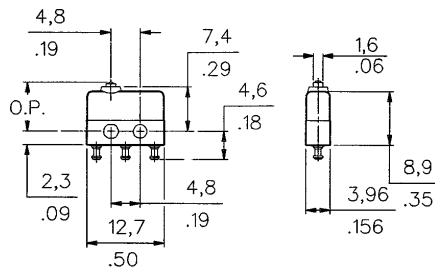


Fig. 2

#### INTEGRAL LEVERS

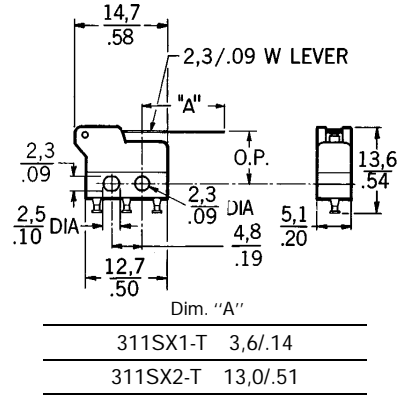


Fig. 3

#### INTEGRAL LEVERS

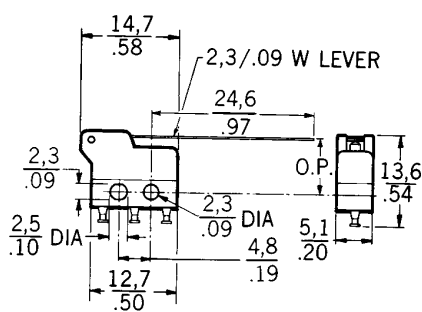


Fig. 4

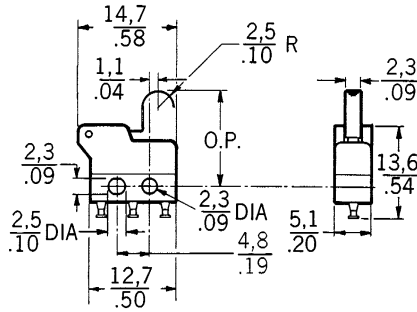


Fig. 5

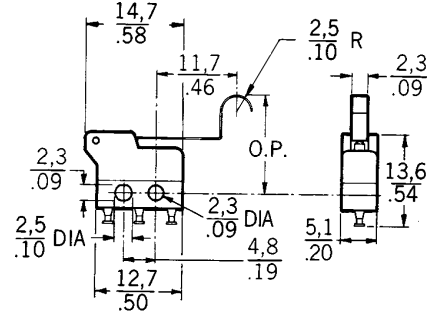


Fig. 6

Interchangeable with 1SX-1T switch with JX-25 actuator.

Miniature/  
Subminiature

#### AUXILIARY ACTUATORS

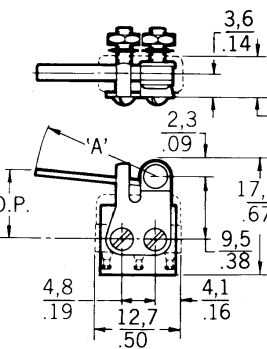


Fig. 7

Switches are not included with actuator.

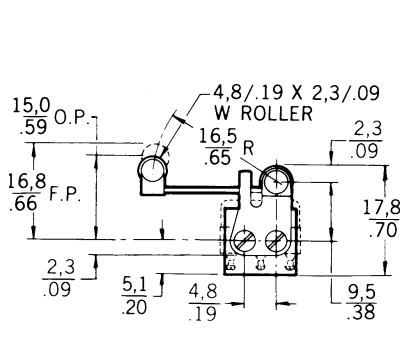


Fig. 8

Mounting holes accept pins or screws of .087 diameter (2,21 mm).

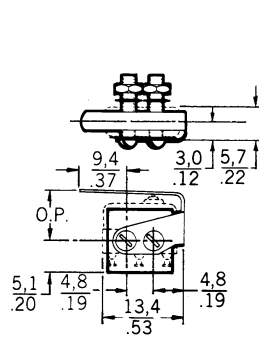


Fig. 9

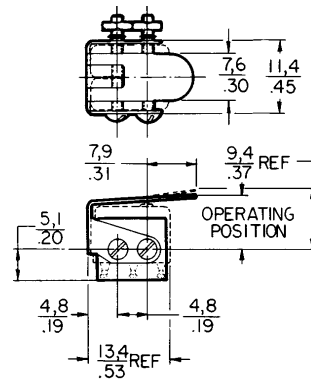


Fig. 10

Key: 0,0 = mm  
0.00 = inches