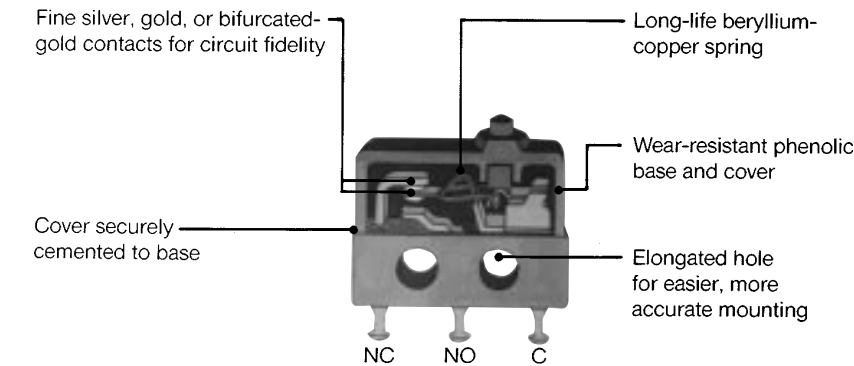


Basic Switches
Subminiature

SX Series

CUT-A-WAY 1SX SUBMINIATURE BASIC SWITCH



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.

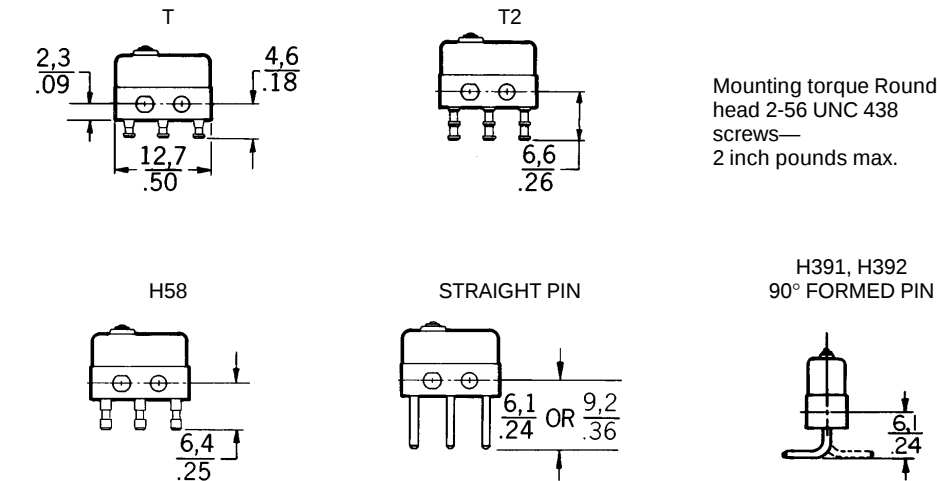
GENERAL INFORMATION

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.

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° to $+250^{\circ}\text{F}$ (-54 to 121°C) on standard construction
- High temperature designs for up to $+400^{\circ}\text{F}$ (204°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

Miniature/
Subminiature



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

Dimensions shown are for reference only

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

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.

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



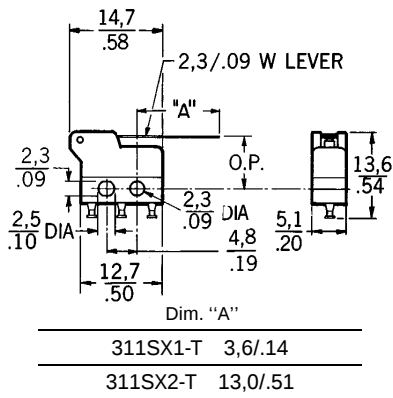
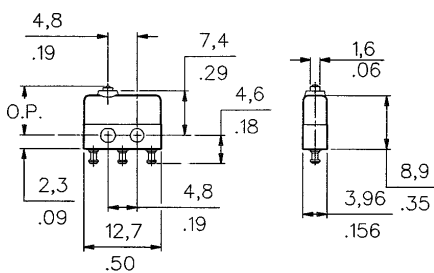
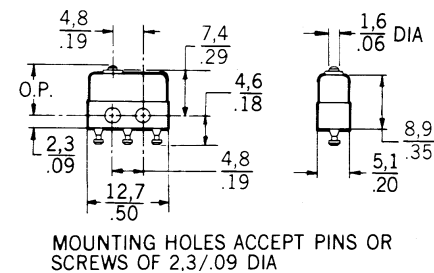
Dim. Dwg. Fig. 6

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

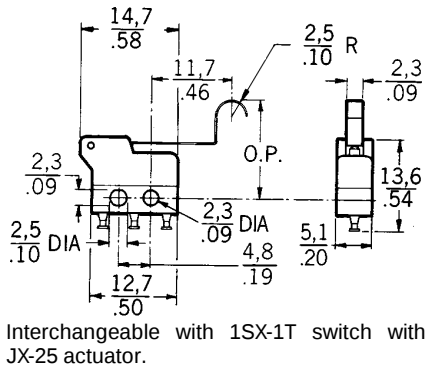
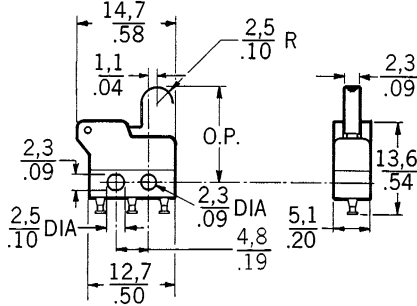
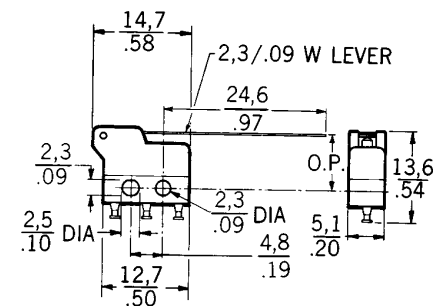
Miniature/
Subminiature

SX Series

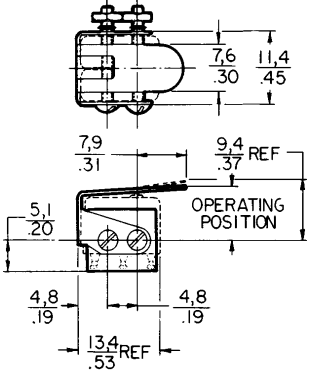
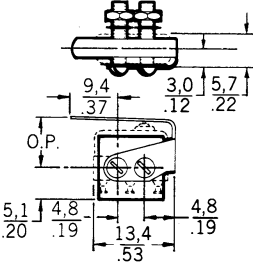
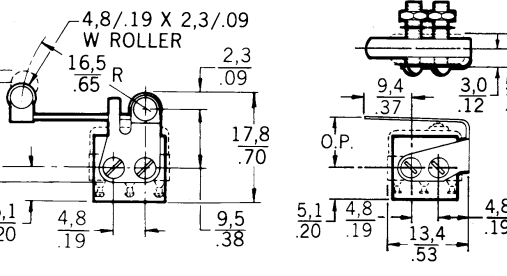
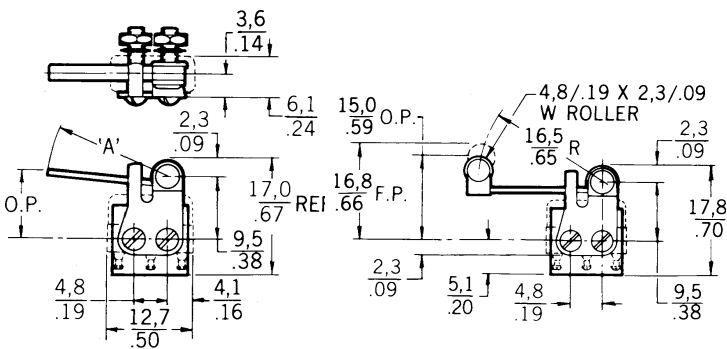
PIN PLUNGER



INTEGRAL LEVERS



AUXILIARY ACTUATORS



Switches are not included with actuator.

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

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

Miniature/ Subminiature

Basic Switches

Subminiature/Miniature

ELECTRICAL DATA AND UL CODES MINIATURE/SUBMINIATURE BASIC SWITCHES

Most of the switches in this section are UL recognized and CSA certified. The current and voltage values shown are based on test conditions specified by these agencies. Electrical life of the switch is influenced by each application condition as well as by voltage and current.

Circuitry	Electrical Data
Single-pole double-throw 	A 5 amps res., 3 amps ind., (sea level), 4 amps res., 2 amps ind., (50,000 feet), 28 vdc 5 amps res. or ind. 115 vac, 60 Hz. UL/CSA rating: 5 amps, 250 vac.
Single-pole double-throw 	B 7 amps res., 4 amps ind., (sea level), 7 amps res., 2.5 amps ind., (50,000 feet), 28 vdc. UL/CSA rating: 7 amps, 250 vac.
Single-pole double-throw 	C 3.5 amps res., 2 amps ind., (sea level), 3.5 amps res., 1.5 amps ind., (50,000 feet), 28 vdc. UL rating: 7 amps, 250 vac.
Single-pole double-throw 	D 1 amp res., 0.5 amp ind., (sea level and 50,000 feet), 28 vdc. UL/CSA rating: 1 amp, 125 vac.
Single-pole double-throw 	E 3 amps res., 2 amps ind., (sea level), 28 vdc. UL rating: 3 amps, 250 vac.
Single-pole double-throw 	F 7 amps res., 4 amps ind., 2.5 amps lamp load, (sea level), 4 amps res., 2.5 amps ind., 2.5 amps lamp load, (50,000 feet), 28 vdc. 7 amps res., 7 amps ind., 2 amps lamp load, 115 vac, 60 Hz (sea level).
Single-pole double-throw 	G 2 amps res., lamp ind., (sea level) 28 vdc.
Single-pole double-throw 	H .010 amp res. and ind., (sea level). 28 vdc. UL/CSA rating: 1 amp, 125 vac.
Single-pole double-throw 	I 7 amps res., 4 amps ind., (sea level), 28 vdc.
Single-pole double-throw 	J 5 amps res., 3 amps ind., (sea level), 5 amps res., 2.5 amps ind., (50,000 feet), 28 vdc. UL rating: 5 amps, 250 vac.
Single-pole double-throw 	K UL rating: 5 amps, 125 or 250 vac.
Single-pole double-throw 	L 1 amp res., 1/2 amp ind., (sea level) 28 vdc.
Single-pole double-throw 	M UL rating: 11 amps and 1/4 hp, 125 or 250 vac.
Single-pole double-throw 	N 1 amp res., 0.5 amp ind., 30 vdc. UL rating: 1 amp, 125 vac.
Single-pole double-throw 	P 1 amp res., 30 vdc. UL rating: .1 amp, 125 vac.
Single-pole double-throw	R 5 amps res., 3 amps ind., 2.4 amps lamp load (sea level), 5 amps res., 2.5 amps ind., 2.4 amps lamp load, (50,000 feet), 28 vdc. 5 amps res., 5 amps ind., 1.5 amps lamp load, 115 vac. 60 Hz (sea level)

Circuitry	Electrical Data
Single-pole double-throw 	S UL rating: 4 amps, 250 vac.
Single-pole double-throw 	T UL/CSA rating: 11 amps and 1/3 hp, 125, 250, or 277 vac; 1/2 amp, 125 vdc; 1/4 amp, 250 vdc; 4 amps, 125 vac "L" (lamp load). TT UL/CSA rating: 10 amps and 1/3 hp, 125 or 250 vac; 1/2 amp, 125 vdc; 1/4 amp, 250 vdc; 4 amps, 125 vac "L" (lamp load).
Single-pole double-throw unless otherwise noted in order guide 	UU 10 amps res., 10 amps ind., (sea level), 6 amps ind. (50,000 feet), 6 amps motor load, 30 vdc. U UL/CSA rating: 15.1 amps and 1/2 hp, 125 or 250 vac. 1/2 amp, 125 vdc; 1/4 amp, 250 vdc; 5 amps, 120 vac "L" (lamp load).
Single-pole double-throw 	VV UL/CSA rating: 3 amps-125, 250, 277 vac; 1/10 hp-250 vac
Single-pole double-throw 	V UL/CSA rating: 10 amps and 1/4 hp, 125 or 250 vac; 1/2 amp, 125 vdc; 1/4 amp, 250 vdc; 3 amps, 125 vac "L" (lamp load).
Single-pole double-throw 	W 10 amps, 250 vac or 28 vdc; 1/2 amp, 125 vdc; 1/4 amp, 250 vdc.
Single-pole double-throw 	X UL rating: 1 amp, 125 vac.
Single-pole double-throw 	Y 10 amps and 1/3 hp, 125 or 250 vac; 4 amps, 125 vac "L" (lamp load).
Single-pole double-throw 	YY UL/CSA rating: 5 amps-125, 250, 277 vac 1/10 hp-250 vac
Two-circuit double-break  Four-circuit double-break 	Z 10 amps, 125 or 250 vac, or 30 vdc. UL/CSA rating: 10 amps, 125 or 250 vac; 1/2 hp, 125 vac.
Single-pole double-throw 	ZZ UL rating: 5 amps and 1/10 hp. 125 or 250 vac.
Single-pole double-throw 	AA UL rating: 20 amps, 277 vac. 1 hp, 125 vac; 2 hp, 250 vac.
Single-pole double-throw 	BB UL rating: 25 amps, 277 vac. 1 hp, 125 vac; 2 hp, 250 vac.