

KLIXON | KX Series

Precision Sine Switches

FEATURES

- Hermetic seal provides exceptional operational freedom from environmental conditions
- Compactly designed to fit small, narrow spaces
- Available with either screw or solder lug type terminals
- Snap-acting sine switch provides exceptional resistance to shock and vibration
- Embedded leads are available
- Lead lengths can be supplied to customer requirements

INTRODUCTION

The Klixon® KX Series hermetically sealed sine switch is a precision snap-acting device. It is designed for use in the aerospace industry and for other applications where operational freedom from environmental conditions is a requirement.

KX series switches are sealed within a one-piece steel case engineered to withstand extremely low or high ambient pressures. True hermetic sealing is achieved with a metal “wave type” diaphragm at the actuating lever. The actuating arm is keyed to hold the arm in alignment and to prevent damage to the diaphragm.

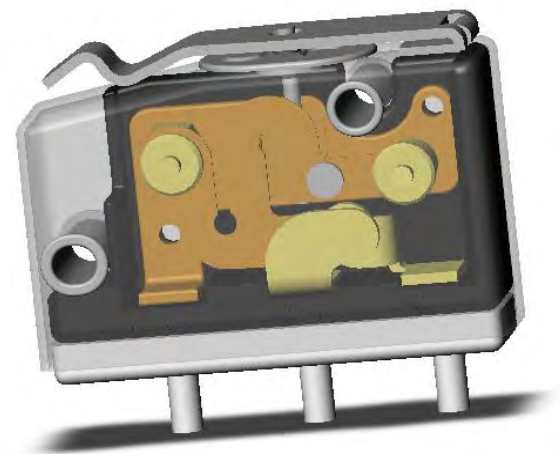
The switching element is the versatile Klixon® sine switch. This simple, one-piece element eliminates knife edges and high friction joints. Rigidly supported at both ends and accurately prestressed in tension, the sine switch features outstanding resistance to shock and vibration.

Klixon® switches have been used in a variety of aircraft, weapons systems, aircraft engine and aerospace applications for well over 30 years. A brief listing of typical applications include:

- Door interlock systems
- Aircraft engine ignitions
- Aircraft missile launcher position indication
- External stores emergency jettison switches
- Stowed / deployed indication for thrust reversers
- Safety ignition indication for military jet engines
- Radar pod door switches
- Tank/armored personnel carrier missile launcher switches
- Tank gun turret position indication

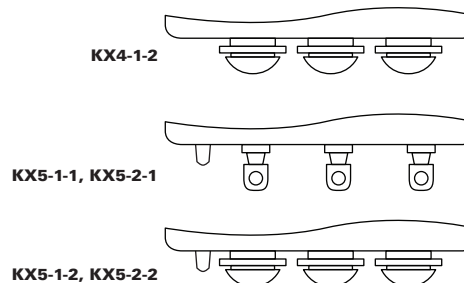
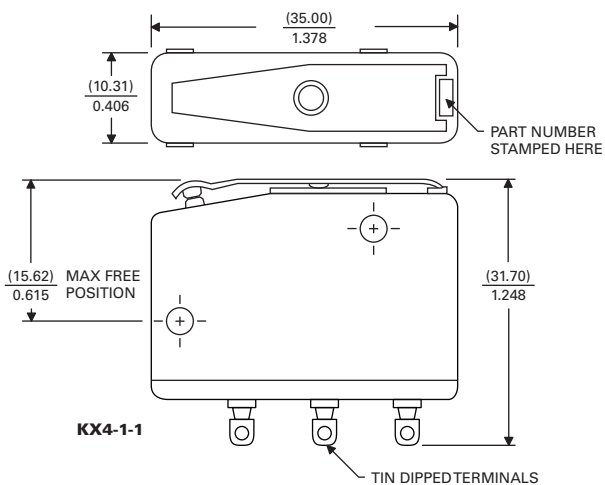
KX - 4 - 1 - 1

Seal		Max Ambient Temperature		Terminals	
4	Epoxy Sealed (class 4)	1	KX4 - 160°F (71°C) KX5 - 275°F (135°C)	1	Solder Lug
5	Hermetically Sealed (class 5, MIL-S-8805)	2	KX5 - 375°F (191°C)	2	Screw



PERFORMANCE & ACTUATION CHARACTERISTICS CHART

		KX4-1-1 KX4-1-2	KX5-1-1 KX5-1-2	KX5-2-1 KX5-2-2
Device Type		Environmental Seal	Hermetic Seal	Hermetic Seal, High Temperature
Actuating Force (STP)		8 to 24 oz	8 to 24 oz	16 to 48 oz
Min Release Force (STP)		3 oz	3 oz	3 oz
Max Pretravel		0.025"	0.025"	0.035"
Max Movement Differential		0.020"	0.020"	0.024"
Min Overtravel		0.015"	0.015"	0.015"
Positive, Overtravel Stop		Yes	Yes	Yes
Max Force on Actuator		25 lb	25 lb	25 lb
Current Ratings in Amps 28VDC & 110VAC 60-400Hz	Resistance	10	10	5
	Inductive	5	5	3
	Lamp	3	3	2
Min Life @ Rated Load		25K	25K	25K
Ambient Temperature Range		-65°F to 160°F (-53.8°C to 71.1°C)	-65°F to 275°F (-53.8°C to 135°C)	-65°F to 375°F (-53.8°C to 190.5°C)
Dielectric Strength		1250 VRMS	1250 VRMS	1250 VRMS
Shock Resistance		100G w/o damage		
Vibration Resistance		20G		
Contact Arrangement		SPDT	SPDT	SPDT
Backfill		—	Dry nitrogen with 10% helium	Dry nitrogen with 10% helium
Seal (MIL-S-8805)		Resilent, Class 4 (epoxy seal)	Fusion, Class 5 (hermetic seal)	Fusion, Class 5 (hermetic seal)
Max Leakage		1 x 10 ⁻⁶ Std. cc He/Sec	1 x 10 ⁻⁸ Std. cc He/Sec	1 x 10 ⁻⁸ Std. cc He/Sec

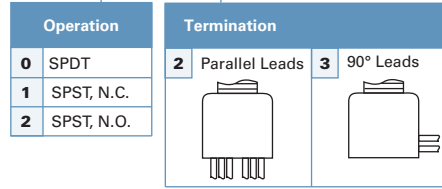


001 SINE SWITCH PACKAGE, 1 POLE (10 amps)

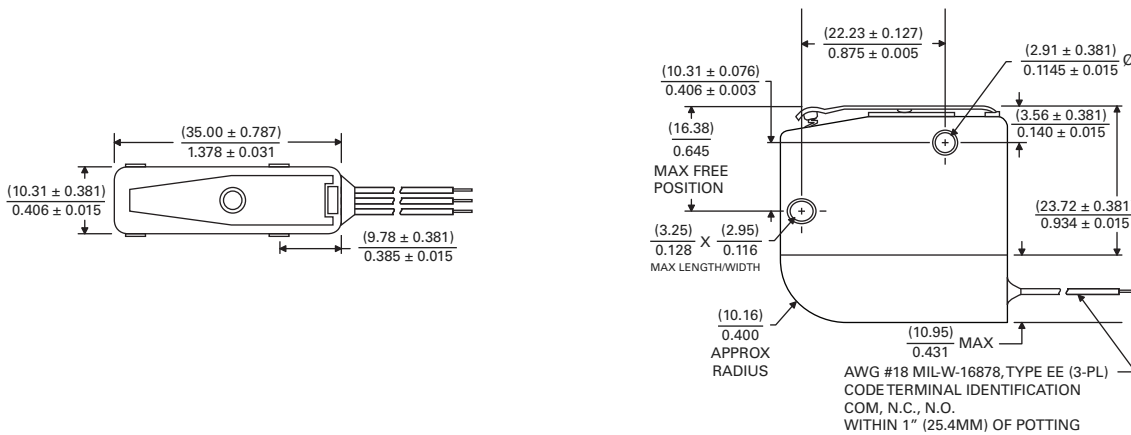
Basic Switch		
KX4	KX5	KX52
sealed	hermetic	hermetic hi temp
Actuating Force (max)	24 oz	24 oz
Release Force (max)	3 oz	3 oz
Pretravel (max)	.025" (1.02mm)	
Movement Diff. (max)	.020" (.76mm)	
Overtravel (min)	.015" (3.18mm)	
Ambient Temperature Range	-67°F to 160°F (-55°C to 71°C)	
Dielectric Strength	1250 VRMS terminal to terminal 1250 VRMS terminal to case	
Approx Weight (no leads)	0.90 oz	

Actuating Force (max)
Release Force (max)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Ambient Temperature Range
Dielectric Strength
Approx Weight (no leads)

KX5 - 001 - 0 3 - 10



Lead Length	
1	6" (153mm)
2	12" (305mm)
3	18" (458mm)
4	24" (610mm)
5	30" (762mm)
6	36" (915mm)
7	42" (1067mm)
8	48" (1220mm)
9	60" (1524mm)
10	72" (1829mm)

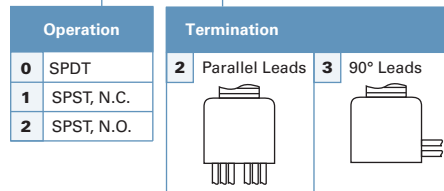


002 SIDE PLATE SWITCH PACKAGE, 1 POLE (10 amps)

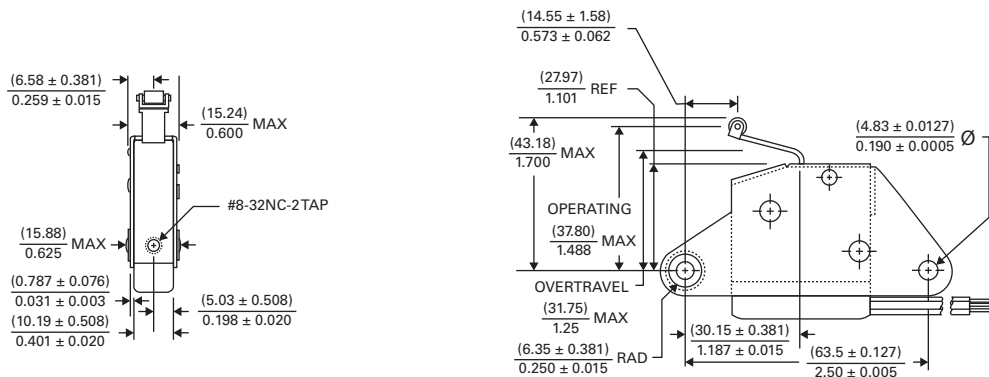
Basic Switch		
KX4	KX5	KX52
std	hi amp	hi amp
Actuating Force (max)	48 oz	48 oz
Release Force (max)	8 oz	8 oz
Movement Diff. (max)	.090" (2.29mm)	

Actuating Force (max)
Release Force (max)
Movement Diff. (max)

KX5 - 002 - 0 3 - 6



Lead Length	
1	6" (153mm)
2	12" (305mm)
3	18" (458mm)
4	24" (610mm)
5	30" (762mm)
6	36" (915mm)
7	42" (1067mm)
8	48" (1220mm)
9	60" (1524mm)
10	72" (1829mm)



003 SIDE PLATE SWITCH PACKAGE, 2 POLE (10 amps)

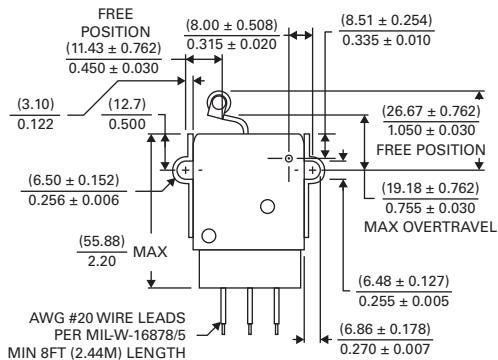
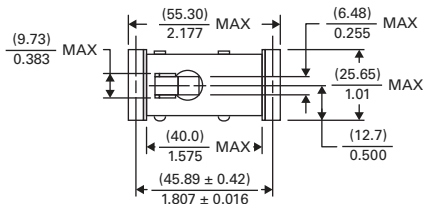
Basic Switch		
KX4	KX5	KX52
std	hi amp	hi amp
Actuating Force (max)	96 oz	96 oz
Overtravel Force (max)	160 oz	160 oz
Pretravel (max)	.100" (2.54mm)	
Movement Diff. (max)	.06" (1.53mm)	
Overtravel (min)	.175" (4.45mm)	
Ambient Temperature Range	-65°F to 275°F (-54°C to 135°C)	
Approx Weight (no leads)	12 oz	

Actuating Force (max)
Overtravel Force (max)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Ambient Temperature Range
Approx Weight (no leads)

KX5 - 003 - 3 2 - 8

Operation		Termination	
3	DPDT	2	Parallel Leads
4	DPST, N.C.	3	90° Leads
5	DPST, N.O.		
6	DPST, N.C., N.O.		

Lead Length	
1	6" (153mm)
2	12" (305mm)
3	18" (458mm)
4	24" (610mm)
5	30" (762mm)
6	36" (915mm)
7	42" (1067mm)
8	48" (1220mm)
9	60" (1524mm)
10	72" (1829mm)



004 ROLLER LEAF SWITCH PACKAGE, 2 POLE (10 amps)

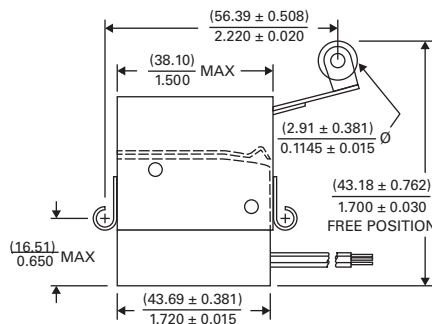
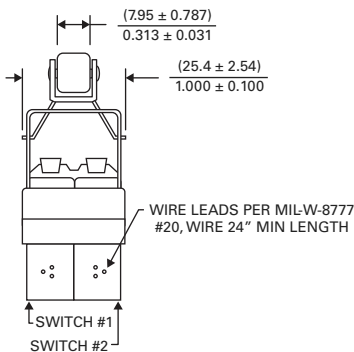
Basic Switch		
KX4	KX5	KX52
sealed	hermetic	hermetic hi temp
Actuating Force (max)	160 oz	160 oz
Release Force (max)	32 oz	32 oz
Pretravel (max)	.150" (3.81mm)	
Movement Diff. (max)	.020" (.76mm)	
Overtravel (min)	.450" (11.43mm)	

Actuating Force (max)
Release Force (max)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)

KX5 - 004 - 3 2 - 10

Operation		Termination	
3	DPDT	2	Parallel Leads
4	DPST, N.C.	3	90° Leads
5	DPST, N.O.		
6	DPST, N.C., N.O.		

Lead Length	
1	6" (153mm)
2	12" (305mm)
3	18" (458mm)
4	24" (610mm)
5	30" (762mm)
6	36" (915mm)
7	42" (1067mm)
8	48" (1220mm)
9	60" (1524mm)
10	72" (1829mm)



005 PLUNGER SWITCH PACKAGE, 2 POLE (10 amps)

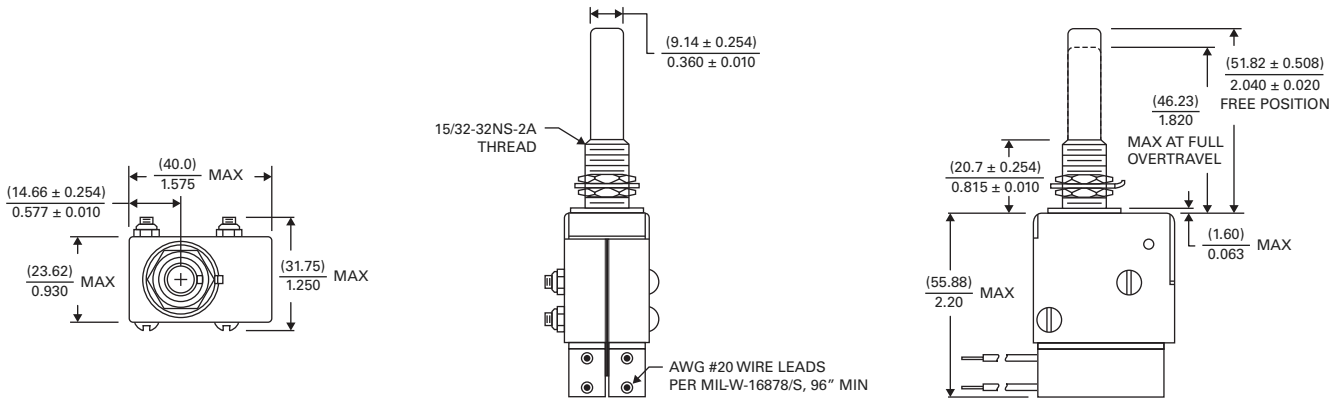
Basic Switch		
KX4	KX5	KX52
std	hi amp	hi amp
Actuating Force (max)	96 oz	96 oz
Release Force (max)	32 oz	32 oz
Pretravel (max)	.075" (1.91mm)	
Movement Diff. (max)	.030" (.76mm)	
Overtravel (min)	.175" (4.45mm)	
Ambient Temperature Range	-65°F to 275°F (-54°C to 135°C)	
Positive Overtravel Stop	Yes	
Max Force on Actuator	20 lbs	
Approx Weight (no leads)	12 oz	

Actuating Force (max)
Release Force (max)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Ambient Temperature Range
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

KX5 - 005 - 3 3 - 10

Operation	Termination
3 DPDT	2 Parallel Leads
4 DPST, N.C.	3 90° Leads
5 DPST, N.O.	
6 DPST, N.C., N.O.	

Lead Length	
1	6" (153mm)
2	12" (305mm)
3	18" (458mm)
4	24" (610mm)
5	30" (762mm)
6	36" (915mm)
7	42" (1067mm)
8	48" (1220mm)
9	60" (1524mm)
10	72" (1829mm)



006 LEAF SWITCH PACKAGE, 4 POLE (10 amps)

Basic Switch		
KX4	KX5	KX52
std	hi amp	hi amp
Actuating Force (max)	48 oz	48 oz
Release Force (max)	8 oz	8 oz
Movement Diff. (max)	.090" (2.29mm)	

Actuating Force (max)
Release Force (max)
Movement Diff. (max)

KX5 - 006 - 10 3 - 10

Operation	Termination
7 3PDT	2 Parallel Leads
8 3PST, N.C.	3 90° Leads
9 3PST, N.O.	
10 4PDT	
11 4PST, N.C.	
12 4PST, N.O.	

Lead Length	
1	6" (153mm)
2	12" (305mm)
3	18" (458mm)
4	24" (610mm)
5	30" (762mm)
6	36" (915mm)
7	42" (1067mm)
8	48" (1220mm)
9	60" (1524mm)
10	72" (1829mm)

