



Sensata
Technologies



KLIXON
®

PRECISION SWITCHES

| | |
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INTRODUCTION TO KLIXON® PRECISION SWITCHES

- Hermetically sealed with dry nitrogen gas backfill
- Excellent shock and vibration resistance
- Switching up to 10 amps
- Optimal for low level circuits
- Temperature range between -275°F and 450°F
- Single and multiple pole designs available
- Small, axis-symmetric design for robustness and reliability
- Small and lightweight
- Various mounting configurations for custom applications
- Sealed and unsealed plunger options
- Wide range of side plate designs for narrow width applications
- Proven snap-action switching, reliable performance and long life
- MIL-S-8805 qualification option
- Approvals for various space, weapons, military and commercial aircraft OEMs

KLIXON® hermetic miniature and sub-miniature snap-action switches are ideal for extremely harsh and demanding environments as found in aircraft, military, aerospace, and aircraft engines applications. KLIXON® precision hermetic switches have been used for over 40 years in a wide range of applications, and can be found on virtually all commercial and military aircraft, as well as various space vehicles and satellites worldwide.

Sensata specializes in custom and semi-custom solutions. Over time we have built-up a design library of over 2,000 switch packages, and have an off the shelf solution to meet most standard and non-standard needs.

We offer a wide choice of precision switches ideally suited for rugged and high cost of failure applications. Sensata Technologies also manufactures a hermetically sealed snap-acting pressure switch line for applications in aerospace and electronics where high reliability and resistance to severe environments is essential.

APPLICATIONS

- Aircraft landing gear and helicopter weight-on-wheels
- Valve position indication in aircraft engines and APU's
- Aircraft environmental control systems and engine controls
- Aircraft flight control surfaces
- Stores away (munitions)
- Door stairway indication
- Brake controls
- Parachute openers
- Bomb racks and ejectors
- APUs
- Satellite panel indication and satellite arm indication
- Pilot ejection seats
- Missile launchers
- Thrust reversers
- Explosive actuators
- EVA equipment
- IUS platform
- Hydraulic / servo controls
- Engine valve indication
- Gearboxes
- Warhead safety circuits
- Weapon firing systems and trigger switches
- Rocket motor controls
- Space station

NOMENCLATURE

Precision hermetic switches are often referred to as:

- Aerospace switches
- Aircraft switches
- Hermetic switches
- Limit switches
- Military switches
- Position switches
- Miniature switches
- Sensitive switches
- Switches

TECHNICAL TERMS

Electrical Life

The minimum number of cycles allowable for a switch under a specified combination of electrical load, actuation and environmental criteria. Usually specified for the maximum current and temperature rating of the switch.

Mechanical Life

The minimum number of cycles allowable for a switch with no electrical load, and a specified combination of actuation and environmental criteria.

Contact Erosion

A general loss of material from one or both surfaces of a pair of mating contacts. This is as a result of switching electrical loads.

Pole

The number of completely separate circuits contained in a switch. A single pole switch can control only one circuit at a time. A double pole switch can control two independent circuits at the same time.

Throw

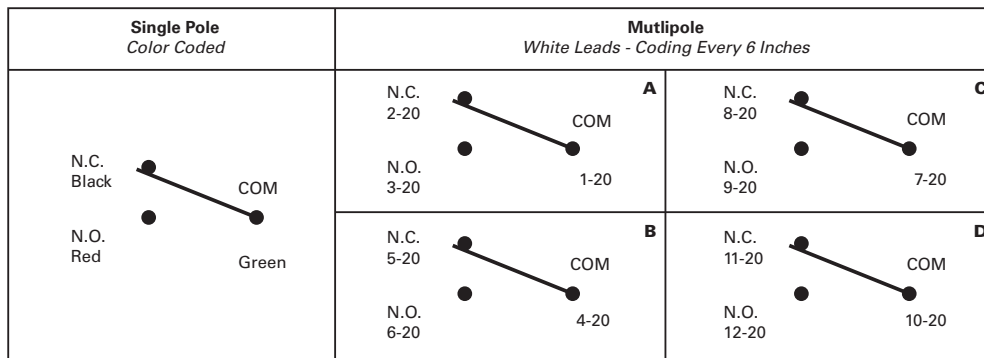
The number of circuits that each individual pole of a switch can control. The number of throws is completely independent of the number of poles.

Contact Resistance

The resistance offered to flow of current during its passage between electrical contacts. For practical reasons, lead and terminal resistance may be included in the actual measurement, as well as the contact resistance proper.

Termination Leads or Connectors

Sensata uses 20 gauge wire per MIL-W-22759 as shown below. Alternative gauges, MIL specs and color coding schemes are available upon request. Sensata will also provide switches with connectors to meet customer application needs.



Terminal Identification
 Red = Normally Open
 Green = Common
 Black = Normally Closed

Wire Leads
 AWG 20 MIL-W-22759/9

NOTE:
 Diagrams show circuits when actuator is in free position.

Dielectric Withstanding Voltage *

The maximum voltage that a switch can withstand between specified points without leakage current exceeding a specified value.

Insulation Resistance *

The resistance offered by the insulating members of a component part to a direct voltage tending to produce a leakage current through or on the surface of these members. Insulation resistance should not be considered the equivalent of dielectric withstanding voltage.

** Insulation resistance measurements should not be considered to be equivalent to dielectric withstand voltage tests. A clear, dry insulation may have a high insulation resistance and yet possess a mechanical fault that would cause failure in the dielectric withstand voltage test. Conversely, a dirty, deteriorated insulation with a low insulation resistance might not break down under a high potential of a DWV test.*

Loads

Three types of loads associated with electrical switches are: resistive, inductive and lamp. Of concern when discussing loads are their effect on the switch contacts.

Resistive

Purely resistive loads are the easiest to switch. Contact life is maximized when switching purely resistive loads because contact erosion is minimized.

Inductive

Inductive loads result in the most contact erosion. This is due to the tendency of the current to continue travelling across the contact while opening, causing arcing.

Lamp

In-rush current is the condition that result in the lamp load rating. The resistance rating of a lamp is normally specified when the lamp is hot. However, when the lamp is cold the resistance is low. This in-rush current can be 10 times the normal current, resulting in welding of the contacts.

Low Level Circuit

Low level circuits are classified in MIL-8805 as those with resistive loads less than 10mA at 30mV. The use of gold plated contacts and the hermetic enclosure of the switch contacts afford an ideal environment for switching low level loads.

Pretravel

The distance the button moves from the free position to the actuation point.

Free Position

The position of the button when there is no external force other than gravity applied to it.

Actuation Point

The position of the button at which the movable contact snaps from the normally closed contact position to the normally open contact position.

Release Position

The position of the button at which the movable contact snaps from the normally open contact position to the normally closed contact position.

Maximum Overtravel Position

The position of the button when the positive overtravel stop is reached. Further overtravel would damage the switch.

Actuation Force

The force which must be applied to the button to cause the movable contact to snap from the normally closed contact position to the normally open contact position.

Release Force

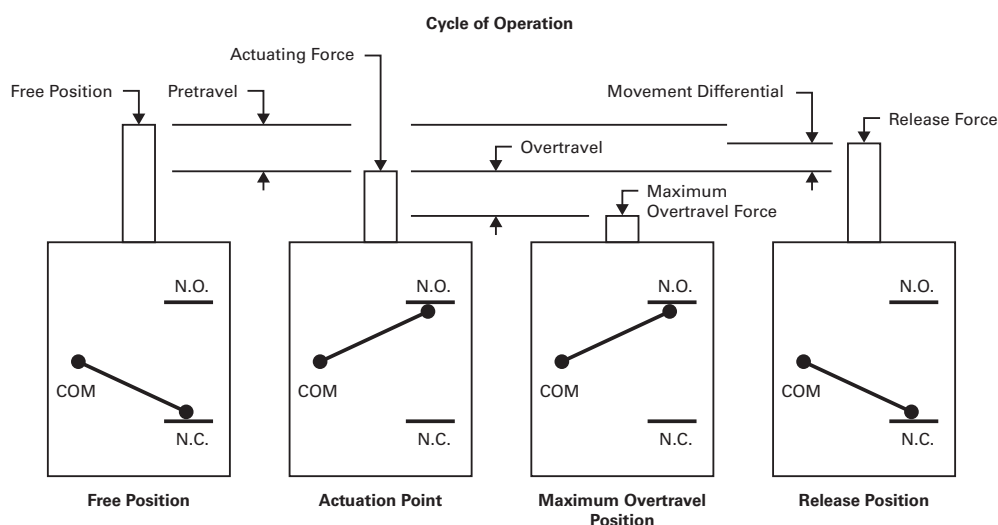
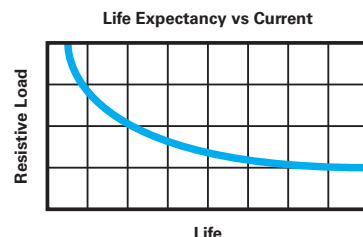
The level to which the force on the button must be reduced to allow the contacts to snap from the normally open position to the normally closed contact position.

Overtravel

The distance that the button can travel beyond the actuation point.

Movement Differential

The distance the button moves from the actuation point to the release point.





KLIXON® | AT Series

Snap Action Precision Position Switches

FEATURES

- Meet the demands of low-level current switching applications
- Various mechanical and electrical configurations available as standard or custom configurations
- Actuation plungers of various shapes and materials available
- Multi-pole switch package options
- Mounting via threaded brushings or side-plate design
- Wiring can be supplied as flying leads or via a variety of standard connectors

INTRODUCTION

The Klixon® AT series are our most popular family of precision hermetic switches because of their broad performance envelope, small size, and ability to be easily incorporated into a wide variety of packages. Klixon® AT series switches are available as basic switches, basic switches with mounting brackets and actuators, or as switch packages. Packages are formed by configuring various electrical terminations, actuator means and physical construction around one or more basic switches.

Within this family there are four basic switches: the AT, the 3AT, the 4AT, and the 10AT. Each has been optimized for particular performance characteristics and is capable of meeting the demands of low-level current switching applications.

| | |
|---|---|
| <p>Standard AT Series</p> | <p>The AT basic switch is the standard device in the AT family, capable of switching up to 3 amps at 28 VDC into resistive loads. See the chart for inductive and lamp loads. Electrical life at these loads is 25K cycles, minimum. Lower currents extend life up to the minimum mechanical life of 100K cycles.</p> |
| <p>High Temperature 3AT Series</p> | <p>If your application requires a device which operates at higher ambient temperatures, then consider the 3AT. Electrical and mechanical life are the same, while the maximum current level is 1A at 28 VDC into resistive loads.</p> |
| <p>Low Temperature 4AT Series</p> | <p>This device is designed to operate at temperatures lower than the standard AT switch, ideal for space applications. Electrical life at 3A, 28VDC is 25K cycles for resistive loads.</p> |
| <p>High Amperage 10AT Series</p> | <p>Designed to operate at lower temperatures and higher current capability than the standard AT switch, the 10AT's maximum current has been extended to 4A at 28VDC (resistive), with an electrical life is 25K cycles and mechanical life is 50K cycles. 10AT's are on the military qualified parts list (MIL-S-8805).</p> |





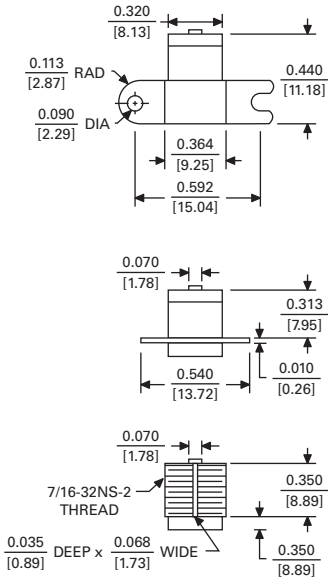
PERFORMANCE & ACTUATION CHARACTERISTICS CHART

| | | AT | | 3AT | 4AT | 10AT |
|---|-------------------|---|-----|--|--|------------------------------------|
| Device Type | | Standard | | High Temperature | Low Temperature | High Amperage |
| Maximum Actuating Force (STP) | | 20 oz | | 20 oz | 28 oz | 30 oz |
| Minimum Release Force (STP) | | 4 oz | | 4 oz | 1 oz | 1 oz |
| Maximum Pretravel | | 0.009" | | 0.009" | 0.009" | 0.009" |
| Maximum Movement Differential | | 0.003" | | 0.003" | 0.003" | 0.003" |
| Minimum Overtravel | | 0.002" | | 0.002" | 0.002" | 0.002" |
| Overtravel Stop | | No | | No | No | No |
| Maximum Force on Actuator | | 5 lb | | 5 lb | 5 lb | 5 lb |
| Current Ratings in Amps (28VDC) | Resistance | 3 | 1 | 1 | 3 | 4 |
| | Inductive | 1 | ½ | ½ | 1 | 1 |
| | Lamp | 1 | ½ | ½ | 1 | 2 |
| Minimum Life @ Rated Load | | 25K | 50K | 25K | 25K | 25K |
| Minimum Mechanical Life Cycles | | 100K | | 100K | 50K | 50K |
| Ambient Temperature Range | | -65°F to 275°F (-53.8°C to 135°C) | | -65°F to 450°F (-53.8°C to 232.2°C) | -275°F to 275°F (-170.5°C to 135°C) | -85°F to 275°F (-65°C to 135°C) |
| Dielectric Strength Terminal to Case Terminal to Terminal | | 1000 VRMS 800 VRMS | | 500 VRMS 500 VRMS | 1000 VRMS 800 VRMS | 1000 VRMS 800 VRMS |
| Max Leakage | | 1 x 10 ⁻⁸ Std. cc He/Sec @ 1 atmosphere differential | | | | |
| Shock Resistance | | 200G, 6 ms sawtooth | | | | |
| Vibration Resistance | | 65G, 10-2000Hz, .5DA or 65GTMS | | | | |
| Insulation Resistance @ 500VDC | | 100 Megohms | | | | |
| Voltage Drop @ 1 amp | | 0.04 | | 0.12 | 0.04 | 0.04 |
| SEAL (MIL-S-8805) | | Design enclosure 5 | | | | |
| Backfill | | Dry nitrogen with 10% helium | | | | |

NOTE FOR DRAWINGS :

1. Because of restricted space we can only show a small percentage of our switch packages and dimensional drawings. Please contact the factory if you do not see the solution you need, or if you require more detailed envelope drawings.
2. Unless otherwise noted, standard leads are AWG #20 per MIL-W-22759/9.
3. All exposed materials on packaged designs are corrosion resistant steel with the exception of the side plates on Style 7 switches which are anodized aluminum alloy.
4. All hardware provided is corrosion resistant steel.

BASIC "AT", BRACKET/FLANGE/THREADS, 1 POLE



AT104-01, 10AT17-03-10, 10AT15-03-10

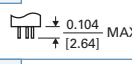
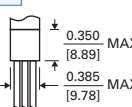
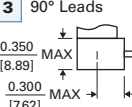
Bracket
Flange
Threads

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

| Basic Switch & Actuator/Body Style | | | |
|------------------------------------|----------------|----------|----------------|
| AT373 | 3AT46 | 4AT48 | 10AT15 |
| std | hi temp | low temp | hi amp |
| 20 oz | 20 oz | 28 oz | 30 oz |
| 1 oz | 1 oz | 1 oz | 4 oz |
| | .009" (0.23mm) | | .005" (0.13mm) |
| | .003" (0.08mm) | | |
| No | No | No | No |
| 5 lb | 5 lb | 5 lb | 5 lb |
| 0.15 oz | 0.15 oz | 0.15 oz | 0.15 oz |

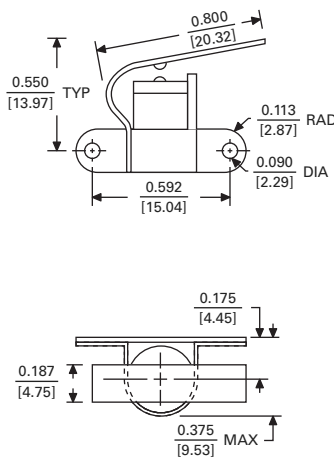
3AT47 - 1 3 - 6

| Operation | |
|-----------|------------|
| 0 | SPDT |
| 1 | SPST, N.C. |
| 2 | SPST, N.O. |

| Termination | |
|-------------|---|
| 1 | Solder Ons  |
| 2 | Parallel Leads  |
| 3 | 90° Leads  |

| 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) |

BASIC "AT", RIGHT HAND ACTUATOR, 1 POLE

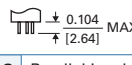
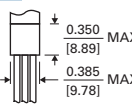
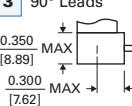


Actuating Force (max)
Release Force (max)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

| Basic Switch & Actuator/Body Style | | | |
|------------------------------------|----------------|----------|---------|
| AT289 | 3AT40 | 4AT43 | 10AT27 |
| std | hi temp | low temp | hi amp |
| 24 oz | 24 oz | 35 oz | 35 oz |
| 1 oz | 1 oz | 1 oz | 4 oz |
| | .250" (6.35mm) | | |
| | .050" (1.27mm) | | |
| | .015" (0.38mm) | | |
| Yes | Yes | Yes | Yes |
| 5 lb | 5 lb | 5 lb | 5 lb |
| 0.18 oz | 0.18 oz | 0.18 oz | 0.18 oz |

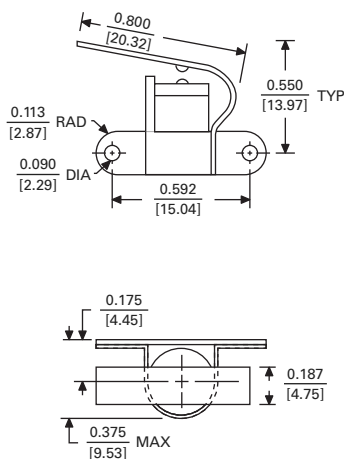
AT289 - 2 2 - 5

| Operation | |
|-----------|------------|
| 0 | SPDT |
| 1 | SPST, N.C. |
| 2 | SPST, N.O. |

| Termination | |
|-------------|---|
| 1 | Solder Ons  |
| 2 | Parallel Leads  |
| 3 | 90° Leads  |

| 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) |

BASIC "AT", LEFT HAND ACTUATOR, 1 POLE

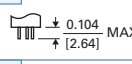
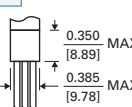
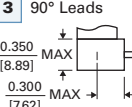


Actuating Force (max)
Release Force (max)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

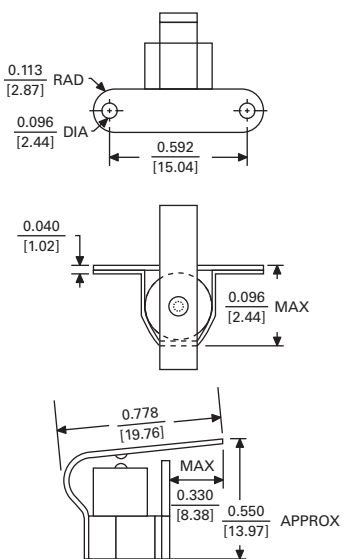
| Basic Switch & Actuator/Body Style | | | |
|------------------------------------|----------------|----------|---------|
| AT290 | 3AT41 | 4AT44 | 10AT28 |
| std | hi temp | low temp | hi amp |
| 24 oz | 24 oz | 35 oz | 35 oz |
| 1 oz | 1 oz | 1 oz | 4 oz |
| | .250" (6.35mm) | | |
| | .050" (1.27mm) | | |
| | .015" (0.38mm) | | |
| Yes | Yes | Yes | Yes |
| 5 lb | 5 lb | 5 lb | 5 lb |
| 0.18 oz | 0.18 oz | 0.18 oz | 0.18 oz |

AT290 - 2 2 - 4

| Operation | |
|-----------|------------|
| 0 | SPDT |
| 1 | SPST, N.C. |
| 2 | SPST, N.O. |

| Termination | |
|-------------|---|
| 1 | Solder Ons  |
| 2 | Parallel Leads  |
| 3 | 90° Leads  |

| 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) |

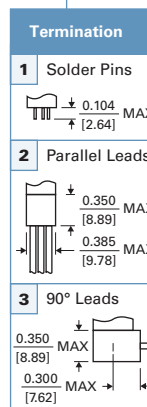


BASIC "AT", CENTRAL ACTUATOR, 1 POLE

3AT53 - 2 1 - 4

| Basic Switch & Actuator/Body Style | | | | |
|------------------------------------|----------------|----------|--------|--------|
| AT294 | 3AT53 | 4AT50 | 10AT29 | |
| std | hi temp | low temp | hi amp | |
| Actuating Force (max) | 24 oz | 24 oz | 35 oz | 35 oz |
| Release Force (max) | 1 oz | 1 oz | 1 oz | 4 oz |
| Pretravel (max) | .250" (6.35mm) | | | |
| Movement Diff. (max) | .050" (1.27mm) | | | |
| Overtravel (min) | .015" (0.38mm) | | | |
| Positive Overtravel Stop | Yes | Yes | Yes | Yes |
| Max Force on Actuator | 5 lb | 5 lb | 5 lb | 5 lb |
| Approx Weight (no leads) | 0.2 oz | 0.2 oz | 0.2 oz | 0.2 oz |

| Operation | |
|-----------|------------|
| 0 | SPDT |
| 1 | SPST, N.C. |
| 2 | SPST, 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) |

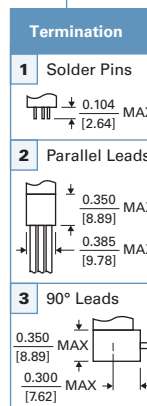
Actuating Force (max)
Release Force (max)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

BASIC "AT", LEFT HAND ACTUATOR, 1 POLE

AT292 - 1 2 - 5

| Basic Switch & Actuator/Body Style | | | | |
|------------------------------------|----------------|----------|---------|---------|
| AT292 | 3AT43 | 4AT46 | 10AT31 | |
| std | hi temp | low temp | hi amp | |
| Actuating Force (max) | 24 oz | 24 oz | 35 oz | 35 oz |
| Release Force (max) | 1 oz | 1 oz | 1 oz | 4 oz |
| Pretravel (max) | .250" (6.35mm) | | | |
| Movement Diff. (max) | .050" (1.27mm) | | | |
| Overtravel (min) | .015" (0.38mm) | | | |
| Positive Overtravel Stop | Yes | Yes | Yes | Yes |
| Max Force on Actuator | 5 lb | 5 lb | 5 lb | 5 lb |
| Approx Weight (no leads) | 0.18 oz | 0.18 oz | 0.18 oz | 0.18 oz |

| Operation | |
|-----------|------------|
| 0 | SPDT |
| 1 | SPST, N.C. |
| 2 | SPST, 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) |

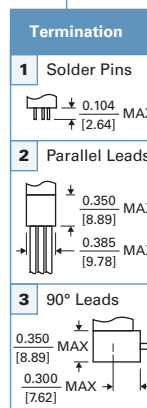
Actuating Force (max)
Release Force (max)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

BASIC "AT", RIGHT HAND ACTUATOR, 1 POLE

AT291 - 2 2 - 2

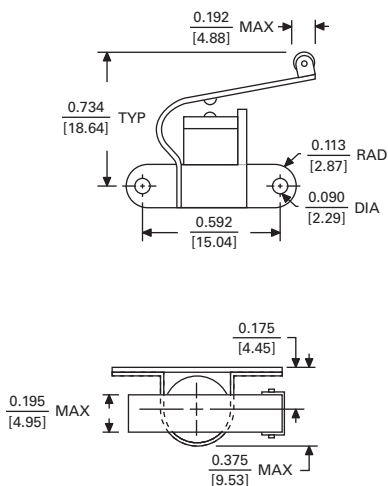
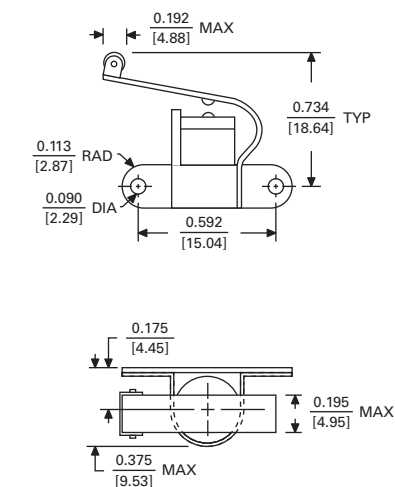
| Basic Switch & Actuator/Body Style | | | | |
|------------------------------------|----------------|----------|--------|--------|
| AT291 | 3AT42 | 4AT45 | 10AT30 | |
| std | hi temp | low temp | hi amp | |
| Actuating Force (max) | 24 oz | 24 oz | 35 oz | 35 oz |
| Release Force (max) | 1 oz | 1 oz | 1 oz | 4 oz |
| Pretravel (max) | .250" (6.35mm) | | | |
| Movement Diff. (max) | .050" (1.27mm) | | | |
| Overtravel (min) | .015" (0.38mm) | | | |
| Positive Overtravel Stop | Yes | Yes | Yes | Yes |
| Max Force on Actuator | 5 lb | 5 lb | 5 lb | 5 lb |
| Approx Weight (no leads) | 0.2 oz | 0.2 oz | 0.2 oz | 0.2 oz |

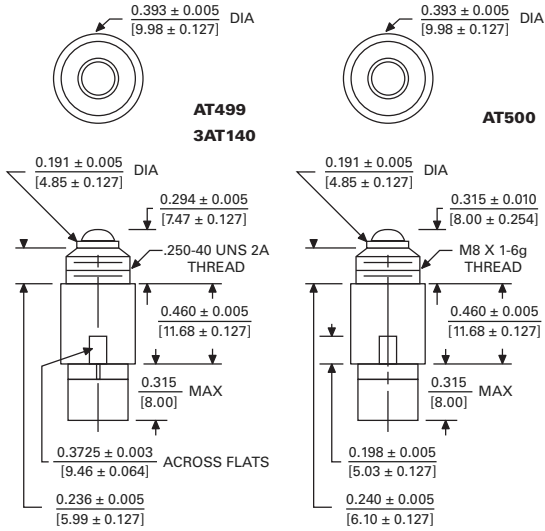
| Operation | |
|-----------|------------|
| 0 | SPDT |
| 1 | SPST, N.C. |
| 2 | SPST, N.O. |



| 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) |

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





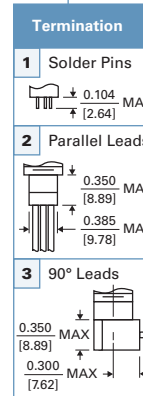
THREADED HEX BODY, FLAT & ROUND PLUNGER, 1 POLE

AT500 - 2 2 - 10

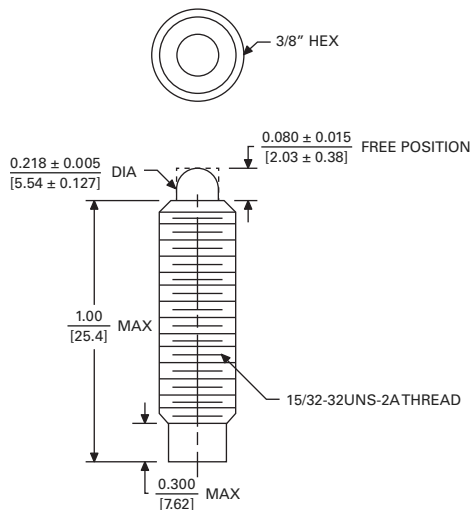
| Basic Switch & Actuator/Body Style | | |
|------------------------------------|----------------|------------|
| AT499 | 3AT140 | AT500 |
| <i>std</i> | <i>hi temp</i> | <i>std</i> |
| Actuating Force (max) | | |
| Release Force (max) | | |
| Pretravel (max) | | |
| Movement Diff. (max) | | |
| Overtravel (min) | | |
| Positive Overtravel Stop | | |
| Max Force on Actuator | | |
| Approx Weight (no leads) | | |

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

| Operation | |
|-----------|------------|
| 0 | SPDT |
| 1 | SPST, N.C. |
| 2 | SPST, 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) |



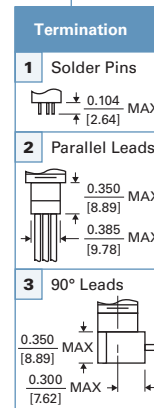
THREADED HEX BODY, FLAT & ROUND PLUNGER, 1 POLE

10AT384 - 2 2 - 10

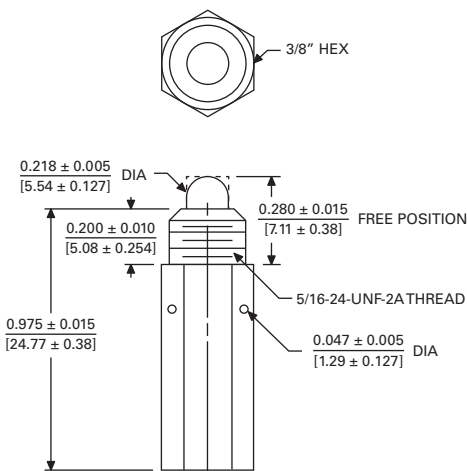
| Basic Switch & Actuator/Body Style | | |
|------------------------------------|----------------|---------------|
| AT414 | 3AT141 | 10AT384 |
| AT415 | 3AT142 | 10AT385 |
| <i>std</i> | <i>hi temp</i> | <i>hi amp</i> |
| Actuating Force (max) | | |
| Release Force (max) | | |
| Pretravel (max) | | |
| Movement Diff. (max) | | |
| Overtravel (min) | | |
| Positive Overtravel Stop | | |
| Max Force on Actuator | | |
| Approx Weight (no leads) | | |

Flat Plunger
Round Plunger
Actuating Force (max)
Release Force (max)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

| Operation | |
|-----------|------------|
| 0 | SPDT |
| 1 | SPST, N.C. |
| 2 | SPST, 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) |



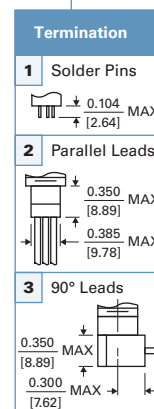
THREADED HEX BODY, FLAT & ROUND PLUNGER, 1 POLE

AT394 - 0 3 - 3

| Basic Switch & Actuator/Body Style | | |
|------------------------------------|----------------|---------------|
| AT393 | 3AT143 | 10AT361 |
| AT394 | 3AT144 | 10AT362 |
| <i>std</i> | <i>hi temp</i> | <i>hi amp</i> |
| Actuating Force (max) | | |
| Release Force (max) | | |
| Pretravel (max) | | |
| Movement Diff. (max) | | |
| Overtravel (min) | | |
| Positive Overtravel Stop | | |
| Max Force on Actuator | | |
| Approx Weight (no leads) | | |

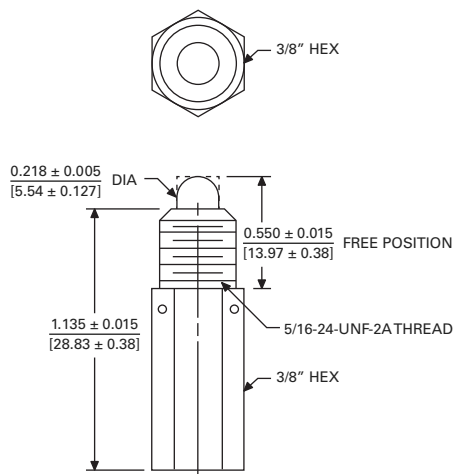
Flat Plunger
Round Plunger
Actuating Force (max)
Release Force (max)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

| Operation | |
|-----------|------------|
| 0 | SPDT |
| 1 | SPST, N.C. |
| 2 | SPST, 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) |

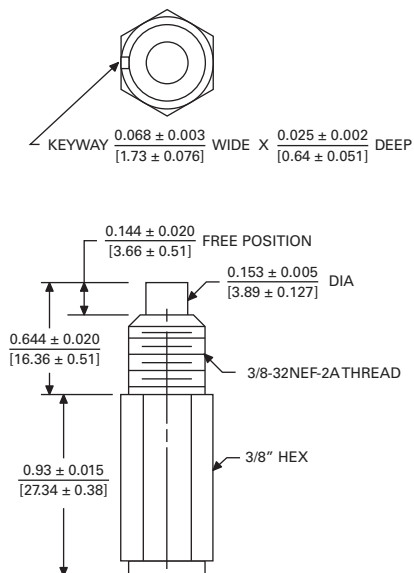
THREADED HEX BODY, FLAT & ROUND PLUNGER, 1 POLE



10AT364 - 0 3 - 10

| | Basic Switch & Actuator/Body Style | | | Operation | Termination | Lead Length |
|---------------------------------|------------------------------------|--------|---------|--|--|--|
| | AT395 | 3AT145 | 10AT363 | | | |
| <i>Flat Plunger</i> | AT395 | 3AT145 | 10AT363 | 0 SPDT 1 SPST, N.C. 2 SPST, N.O. | 1 Solder Pins 2 Parallel Leads 3 90° Leads | 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) |
| <i>Round Plunger</i> | AT396 | 3AT146 | 10AT364 | | | |
| <i>Actuating Force (max)</i> | 20 oz | | 30 oz | | | |
| <i>Release Force (max)</i> | 1 oz | | 4 oz | | | |
| <i>Pretravel (max)</i> | .010" (.254mm) | | | | | |
| <i>Movement Diff. (max)</i> | .005" (.127mm) | | | | | |
| <i>Overtravel (min)</i> | .125" (3.18mm) | | | | | |
| <i>Positive Overtravel Stop</i> | Yes | | Yes | | | |
| <i>Max Force on Actuator</i> | 20 lb | | 20 lb | | | |
| <i>Approx Weight (no leads)</i> | 0.6 oz | | 0.6 oz | | | |

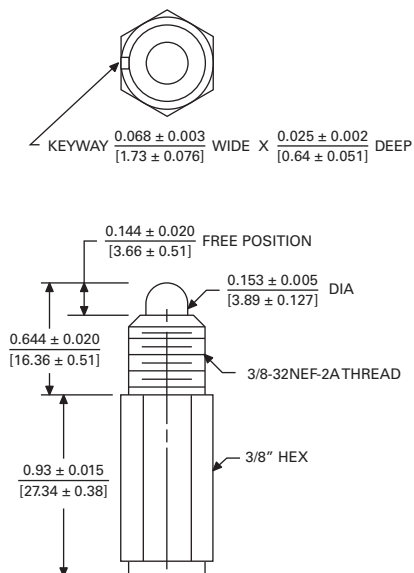
THREADED HEX BODY, FLAT PLUNGER, 1 POLE



AT268 - 2 2 - 2

| | Basic Switch & Actuator/Body Style | | | Operation | Termination | Lead Length |
|----------------------------------|------------------------------------|--------|-------|--|--|--|
| | AT268 | 3AT138 | 10AT7 | | | |
| <i>Actuating Force (max)</i> | 104 oz | | | 0 SPDT 1 SPST, N.C. 2 SPST, N.O. | 1 Solder Pins 2 Parallel Leads 3 90° Leads | 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) |
| <i>Release Force (max)</i> | 24 oz | | | | | |
| <i>Plunger Seal / MIL-S-8805</i> | Yes | | | | | |
| <i>Pretravel (max)</i> | .010" (.254mm) | | | | | |
| <i>Movement Diff. (max)</i> | .005" (.127mm) | | | | | |
| <i>Overtravel (min)</i> | .060" (1.52mm) | | | | | |
| <i>Positive Overtravel Stop</i> | Yes | | | | | |
| <i>Max Force on Actuator</i> | 20 lb | | | | | |
| <i>Approx Weight (no leads)</i> | 0.5 oz | | | | | |

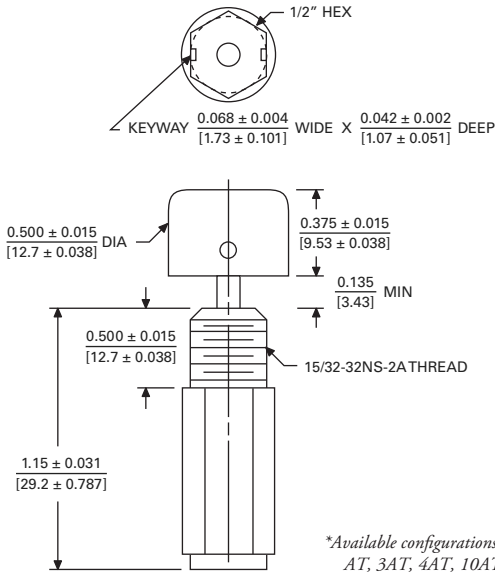
THREADED HEX BODY, ROUND PLUNGER, 1 POLE



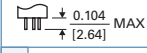
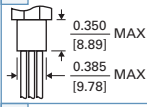
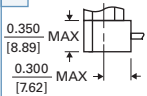
AT269 - 2 2 - 2

| | Basic Switch & Actuator/Body Style | | | Operation | Termination | Lead Length |
|----------------------------------|------------------------------------|--------|--------|--|--|--|
| | AT269 | 3AT139 | 10AT76 | | | |
| <i>Actuating Force (max)</i> | 104 oz | | | 0 SPDT 1 SPST, N.C. 2 SPST, N.O. | 1 Solder Pins 2 Parallel Leads 3 90° Leads | 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) |
| <i>Release Force (max)</i> | 24 oz | | | | | |
| <i>Plunger Seal / MIL-S-8805</i> | Yes | | | | | |
| <i>Pretravel (max)</i> | .020" (.508mm) | | | | | |
| <i>Movement Diff. (max)</i> | .010" (.254mm) | | | | | |
| <i>Overtravel (min)</i> | .125" (3.18mm) | | | | | |
| <i>Positive Overtravel Stop</i> | Yes | | | | | |
| <i>Max Force on Actuator</i> | 30 lb | | | | | |
| <i>Approx Weight (no leads)</i> | 1.0 oz | | | | | |

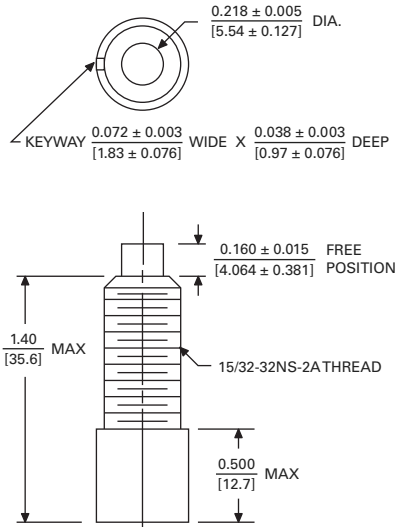
THREADED HEX BODY, PADDLE PLUNGER, 1 POLE



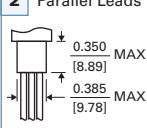
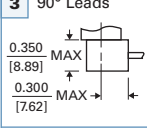
AT87 - 0 3 - 9

| Basic Switch & Actuator/Body Style | | Operation | Termination | Lead Length |
|------------------------------------|----------------|---------------------|---|------------------------|
| AT224 | 10AT87 | 0 SPDT | 1 Solder Pins | 1 6" (153mm) |
| <i>std</i> | <i>hi amp</i> | 1 SPST, N.C. |  | 2 12" (305mm) |
| 104 oz | 104 oz | 2 SPST, N.O. | ± 0.104 MAX [2.64] | 3 18" (458mm) |
| 24 oz | 24 oz | | 2 Parallel Leads | 4 24" (610mm) |
| Yes | Yes | |  | 5 30" (762mm) |
| Yes | Yes | | ± 0.350 MAX [8.89] | 6 36" (915mm) |
| .020" (.508mm) | .010" (.254mm) | | ± 0.385 MAX [9.78] | 7 42" (1067mm) |
| .125" (3.18mm) | .125" (3.18mm) | | 3 90° Leads | 8 48" (1220mm) |
| Yes | Yes | |  | 9 60" (1524mm) |
| 30 lb | 30 lb | | ± 0.350 MAX [8.89] | 10 72" (1829mm) |
| 1.1 oz | 1.1 oz | | ± 0.300 MAX [7.62] | |

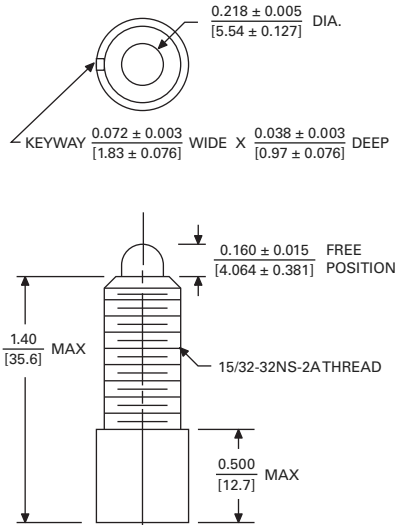
THREADED, FLAT PLUNGER, 1 POLE



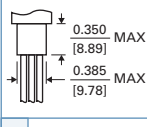
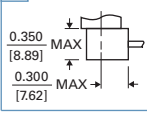
AT403 - 0 2 - 4

| Basic Switch & Actuator/Body Style | | | | Operation | Termination | Lead Length |
|------------------------------------|----------------|----------------|----------------|---------------------|---|------------------------|
| AT400 | 10AT366 | AT403 | 10AT369 | 0 SPDT | 2 Parallel Leads | 1 6" (153mm) |
| <i>std</i> | <i>hi amp</i> | <i>std</i> | <i>hi amp</i> | 1 SPST, N.C. |  | 2 12" (305mm) |
| 20 oz | 30 oz | 104 oz | 112 oz | 2 SPST, N.O. | ± 0.350 MAX [8.89] | 3 18" (458mm) |
| 1 oz | 4 oz | 24 oz | 24 oz | | ± 0.385 MAX [9.78] | 4 24" (610mm) |
| No | No | Yes | Yes | | 3 90° Leads | 5 30" (762mm) |
| .010" (.254mm) | .020" (.51mm) | .010" (.254mm) | .020" (.51mm) | |  | 6 36" (915mm) |
| .005" (.127mm) | .005" (.127mm) | .005" (.127mm) | .005" (.127mm) | | ± 0.350 MAX [8.89] | 7 42" (1067mm) |
| .125" (3.18mm) | .125" (3.18mm) | .125" (3.18mm) | .125" (3.18mm) | | ± 0.300 MAX [7.62] | 8 48" (1220mm) |
| Yes | Yes | Yes | Yes | | | 9 60" (1524mm) |
| 30 lb | 30 lb | 30 lb | 30 lb | | | 10 72" (1829mm) |
| 1.2 oz | 1.2 oz | 1.2 oz | 1.2 oz | | | |

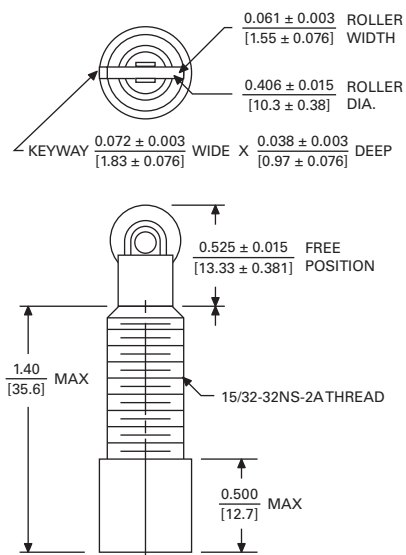
THREADED, ROUND PLUNGER, 1 POLE



AT401 - 2 3 - 1

| Basic Switch & Actuator/Body Style | | | | Operation | Termination | Lead Length |
|------------------------------------|----------------|----------------|----------------|---------------------|---|------------------------|
| AT401 | 10AT367 | AT404 | 10AT370 | 0 SPDT | 2 Parallel Leads | 1 6" (153mm) |
| <i>std</i> | <i>hi amp</i> | <i>std</i> | <i>hi amp</i> | 1 SPST, N.C. |  | 2 12" (305mm) |
| 20 oz | 30 oz | 104 oz | 112 oz | 2 SPST, N.O. | ± 0.350 MAX [8.89] | 3 18" (458mm) |
| 1 oz | 4 oz | 24 oz | 24 oz | | ± 0.385 MAX [9.78] | 4 24" (610mm) |
| No | No | Yes | Yes | | 3 90° Leads | 5 30" (762mm) |
| .010" (.254mm) | .020" (.51mm) | .010" (.254mm) | .020" (.51mm) | |  | 6 36" (915mm) |
| .005" (.127mm) | .005" (.127mm) | .005" (.127mm) | .005" (.127mm) | | ± 0.350 MAX [8.89] | 7 42" (1067mm) |
| .125" (3.18mm) | .125" (3.18mm) | .125" (3.18mm) | .125" (3.18mm) | | ± 0.300 MAX [7.62] | 8 48" (1220mm) |
| Yes | Yes | Yes | Yes | | | 9 60" (1524mm) |
| 30 lb | 30 lb | 30 lb | 30 lb | | | 10 72" (1829mm) |
| 1.2 oz | 1.2 oz | 1.2 oz | 1.2 oz | | | |

THREADED, ROLLER PLUNGER, 1 POLE

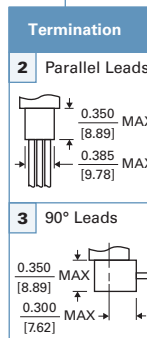


Actuating Force (max)
Release Force (max)
Plunger Seal / MIL-S-8805
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

| Basic Switch & Actuator/Body Style | | | |
|------------------------------------|----------------|----------------|----------------|
| AT402 | 10AT368 | AT405 | 10AT371 |
| std | hi amp | std | hi amp |
| 20 oz | 30 oz | 104 oz | 112 oz |
| 1 oz | 4 oz | 24 oz | 24 oz |
| No | No | Yes | Yes |
| .010" (.254mm) | .020" (.51mm) | .005" (.127mm) | .005" (.127mm) |
| .125" (3.18mm) | .125" (3.18mm) | .125" (3.18mm) | .125" (3.18mm) |
| Yes | Yes | Yes | Yes |
| 30 lb | 30 lb | 30 lb | 30 lb |
| 1.3 oz | 1.3 oz | 1.3 oz | 1.3 oz |

10AT371 - 1 3 - 9

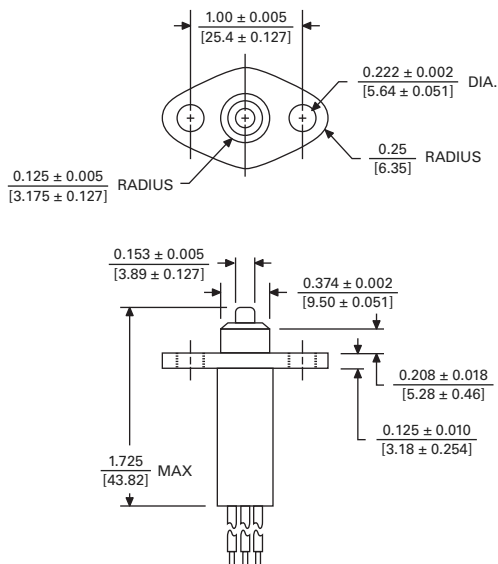
| Operation | |
|-----------|------------|
| 0 | SPDT |
| 1 | SPST, N.C. |
| 2 | SPST, N.O. |



| 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) |

* 3AT / 4AT versions available

FLANGE MOUNT, SEALED PLUNGER, 1 POLE



Actuating Force (max)
Release Force (max)
Plunger Seal / MIL-S-8805
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

| Basic Switch & Actuator/Body Style | |
|------------------------------------|--|
| 10AT376 | |
| hi amp | |
| 192 oz | |
| 112 oz | |
| Yes | |
| .040" (1.02mm) | |
| .010" (.254mm) | |
| .125" (3.18mm) | |
| Yes | |
| 30 lbs | |
| 1.1 oz | |

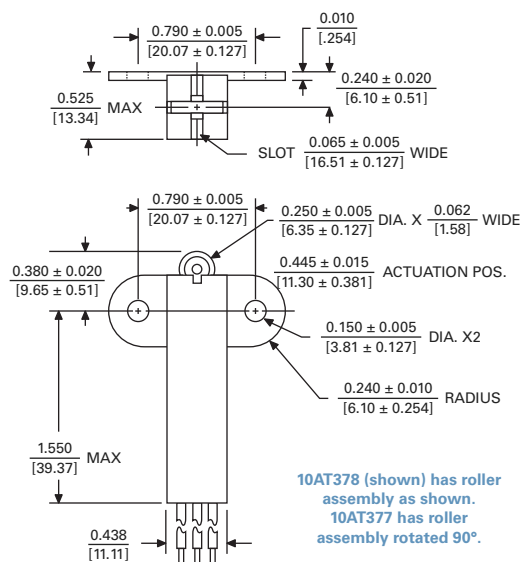
10AT376 - 0 2 - 7

| Operation | |
|-----------|------------|
| 0 | SPDT |
| 1 | SPST, N.C. |
| 2 | SPST, N.O. |

| Termination | |
|-------------|----------------|
| 2 | Parallel Leads |

| 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) |

FLANGE MOUNT, SEALED ROLLER PLUNGER, 1 POLE



Actuating Force (max)
Release Force (max)
Plunger Seal / MIL-S-8805
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

| Basic Switch & Actuator/Body Style | |
|------------------------------------|----------------|
| 10AT377 | 10AT378 |
| hi amp | hi amp |
| 30 oz | 30 oz |
| 16 oz | 16 oz |
| Yes | Yes |
| .040" (1.02mm) | .040" (1.02mm) |
| .010" (.254mm) | .010" (.254mm) |
| .125" (3.18mm) | .125" (3.18mm) |
| Yes | Yes |
| 30 lbs | 30 lbs |
| 1.2 oz | 1.2 oz |

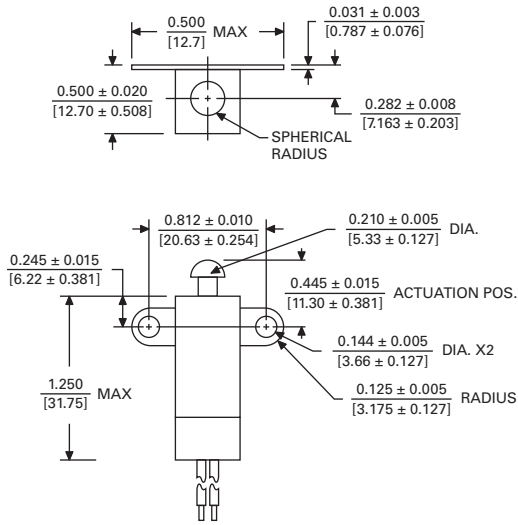
10AT377 - 1 2 - 5

| Operation | |
|-----------|------------|
| 0 | SPDT |
| 1 | SPST, N.C. |
| 2 | SPST, N.O. |

| Termination | |
|-------------|----------------|
| 2 | Parallel Leads |

| 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) |

FLANGE MOUNT, UNSEALED ROUND PLUNGER, 1 POLE

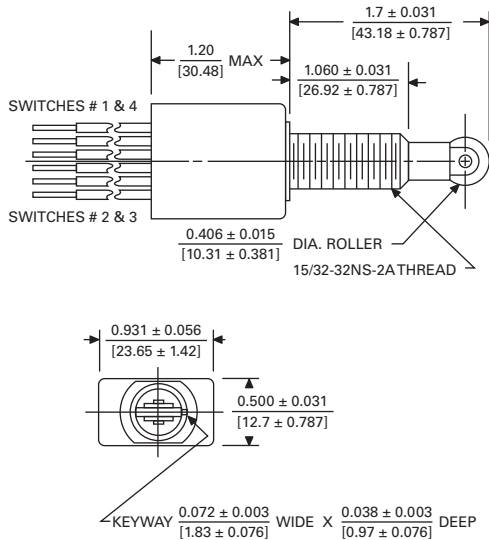


Actuating Force (max)
Release Force (max)
Plunger Seal / MIL-S-8805
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

10AT379 - 1 2 - 9

| Basic Switch & Actuator/Body Style | Operation | Termination | Lead Length |
|------------------------------------|---------------------|-------------------------|------------------------|
| 10AT379 | 0 SPDT | 2 Parallel Leads | 1 6" (153mm) |
| <i>hi amp</i> | 1 SPST, N.C. | | 2 12" (305mm) |
| | 2 SPST, N.O. | | 3 18" (458mm) |
| | | | 4 24" (610mm) |
| | | | 5 30" (762mm) |
| | | | 6 36" (915mm) |
| | | | 7 42" (1067mm) |
| | | | 8 48" (1220mm) |
| | | | 9 60" (1524mm) |
| | | | 10 72" (1829mm) |

THREADED, SEALED ROLLER PLUNGER, 2 POLE

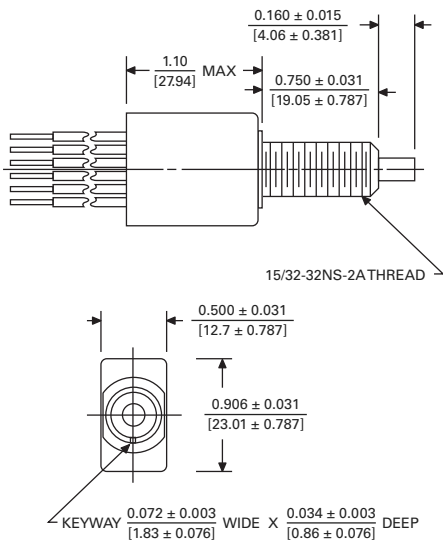


Actuating Force (max)
Release Force (max)
Plunger Seal / MIL-S-8805
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

10AT373 - 3 3 - 1

| Basic Switch & Actuator/Body Style | Operation | Termination | Lead Length |
|------------------------------------|----------------------|-------------------------|------------------------|
| 3AT147 10AT373 | 3 DPDT | 2 Parallel Leads | 1 6" (153mm) |
| <i>hi temp</i> <i>hi amp</i> | 4 DPST, N.C. | | 2 12" (305mm) |
| | 5 DPST, N.O. | | 3 18" (458mm) |
| | 6 DPST, NC/NO | | 4 24" (610mm) |
| | | | 5 30" (762mm) |
| | | | 6 36" (915mm) |
| | | | 7 42" (1067mm) |
| | | | 8 48" (1220mm) |
| | | | 9 60" (1524mm) |
| | | | 10 72" (1829mm) |

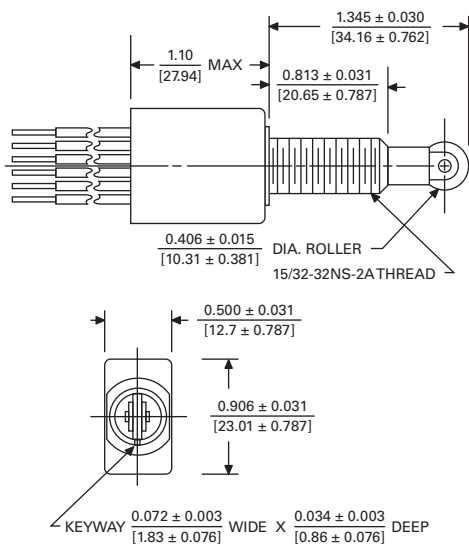
THREADED, SEALED FLAT PLUNGER, 2 POLE



Actuating Force (max)
Release Force (max)
Plunger Seal / MIL-S-8805
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

AT391 - 3 2 - 7

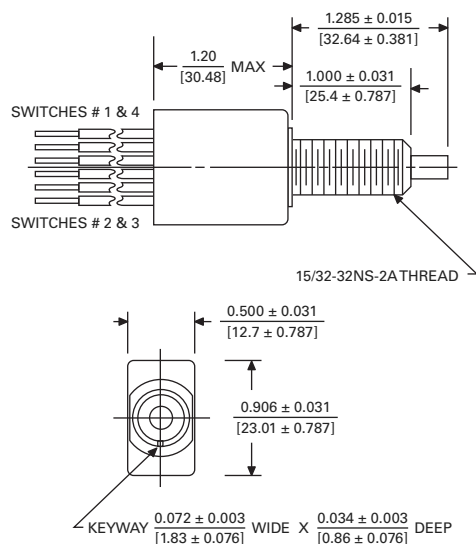
| Basic Switch & Actuator/Body Style | Operation | Termination | Lead Length |
|---|--------------------------|-------------------------|------------------------|
| AT391 3AT148 10AT358 | 3 DPDT | 2 Parallel Leads | 1 6" (153mm) |
| <i>std</i> <i>hi temp</i> <i>hi amp</i> | 4 DPST, N.C. | | 2 12" (305mm) |
| | 5 DPST, N.O. | | 3 18" (458mm) |
| | 6 DPST, N.C./N.O. | | 4 24" (610mm) |
| | | | 5 30" (762mm) |
| | | | 6 36" (915mm) |
| | | | 7 42" (1067mm) |
| | | | 8 48" (1220mm) |
| | | | 9 60" (1524mm) |
| | | | 10 72" (1829mm) |



THREADED, SEALED ROLLER PLUNGER, 2 POLE

AT392 - 4 3 - 2

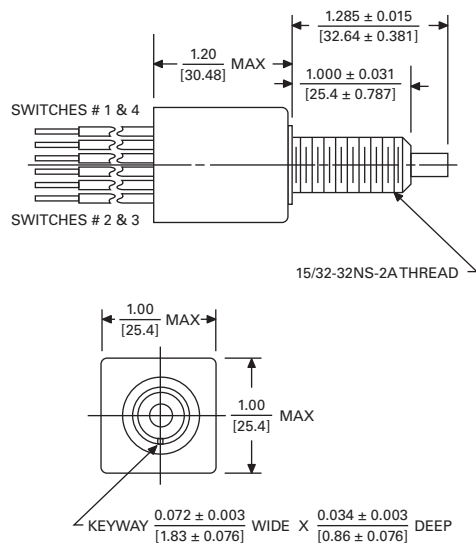
| Basic Switch & Actuator/Body Style | | Operation | Termination | Lead Length |
|------------------------------------|----------------|--------------------------|-------------------------|----------------------|
| AT392 | 10AT359 | 3 DPDT | 2 Parallel Leads | 1 6" (153mm) |
| <i>std</i> | <i>hi amp</i> | 4 DPST, N.C. | | 2 12" (305mm) |
| Actuating Force (max) | 160 oz | 5 DPST, N.O. | | 3 18" (458mm) |
| Release Force (max) | 16 oz | 6 DPST, N.C./N.O. | | 4 24" (610mm) |
| Plunger Seal / MIL-S-8805 | Yes | | | 5 30" (762mm) |
| Pretravel (max) | .030" (.76mm) | | 6 36" (915mm) | |
| Movement Diff. (max) | .020" (.51mm) | | 7 42" (1067mm) | |
| Overtravel (min) | .125" (3.18mm) | | 8 48" (1220mm) | |
| Positive Overtravel Stop | Yes | | 9 60" (1524mm) | |
| Max Force on Actuator | 30 lb | | 10 72" (1829mm) | |
| Approx Weight (no leads) | 1.4 oz | | | |



THREADED, SEALED FLAT PLUNGER, 2 POLE

AT406 - 6 2 - 6

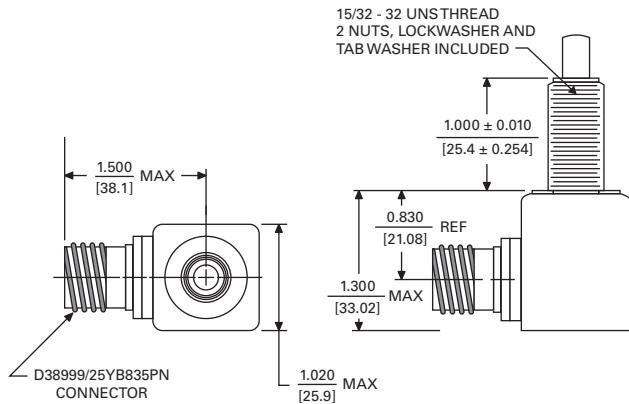
| Basic Switch & Actuator/Body Style | | Operation | Termination | Lead Length |
|------------------------------------|----------------|--------------------------|-------------------------|----------------------|
| AT406 | 10AT372 | 3 DPDT | 2 Parallel Leads | 1 6" (153mm) |
| <i>hi amp</i> | <i>hi amp</i> | 4 DPST, N.C. | | 2 12" (305mm) |
| Actuating Force (max) | 160 oz | 5 DPST, N.O. | | 3 18" (458mm) |
| Release Force (max) | 16 oz | 6 DPST, N.C./N.O. | | 4 24" (610mm) |
| Plunger Seal / MIL-S-8805 | Yes | | | 5 30" (762mm) |
| Pretravel (max) | .030" (.76mm) | | 6 36" (915mm) | |
| Movement Diff. (max) | .020" (.51mm) | | 7 42" (1067mm) | |
| Overtravel (min) | .200" (5.1mm) | | 8 48" (1220mm) | |
| Positive Overtravel Stop | Yes | | 9 60" (1524mm) | |
| Max Force on Actuator | 30 lb | | 10 72" (1829mm) | |
| Approx Weight (no leads) | 1.6 oz | | | |



THREADED, SEALED FLAT PLUNGER, 3 OR 4 POLE

AT409 - 9 2 - 4

| Basic Switch & Actuator/Body Style | | Operation | Termination | Lead Length |
|------------------------------------|----------------|----------------------|-------------------------|----------------------|
| AT409 | 10AT375 | 7 3PDT | 2 Parallel Leads | 1 6" (153mm) |
| <i>hi amp</i> | <i>hi amp</i> | 8 3PST, N.C. | | 2 12" (305mm) |
| Actuating Force (max) | 160 oz | 9 3PST, N.O. | | 3 18" (458mm) |
| Release Force (max) | 16 oz | 10 4PDT | | 4 24" (610mm) |
| Plunger Seal / MIL-S-8805 | Yes | 11 4PST, N.C. | | 5 30" (762mm) |
| Pretravel (max) | .030" (.76mm) | 12 4PST, N.O. | 6 36" (915mm) | |
| Movement Diff. (max) | .020" (.51mm) | | 7 42" (1067mm) | |
| Overtravel (min) | .200" (5.1mm) | | 8 48" (1220mm) | |
| Positive Overtravel Stop | Yes | | 9 60" (1524mm) | |
| Max Force on Actuator | 30 lb | | 10 72" (1829mm) | |
| Approx Weight (no leads) | 3.4 oz | | | |



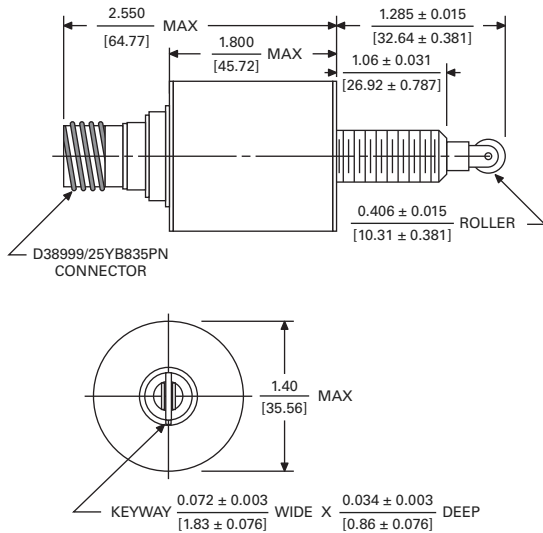
PLUNGER SWITCH, 1 POLE

10AT482 - 1

| Basic Switch & Actuator/Body Style | | Operation | |
|------------------------------------|----------------|---------------|--|
| 10AT482 | | 1 SPST | |
| <i>std</i> | | | |
| Actuating Force (max) | 112 oz | | |
| Release Force (min) | 16 oz | | |
| Pretravel (max) | .020" (.508mm) | | |
| Movement Diff. (max) | .010" (.254mm) | | |
| Overtravel (min) | .125" (3.18mm) | | |
| Approx Weight (no leads) | 4 oz | | |

Actuating Force (max)
Release Force (min)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Approx Weight (no leads)

*Various connectors available



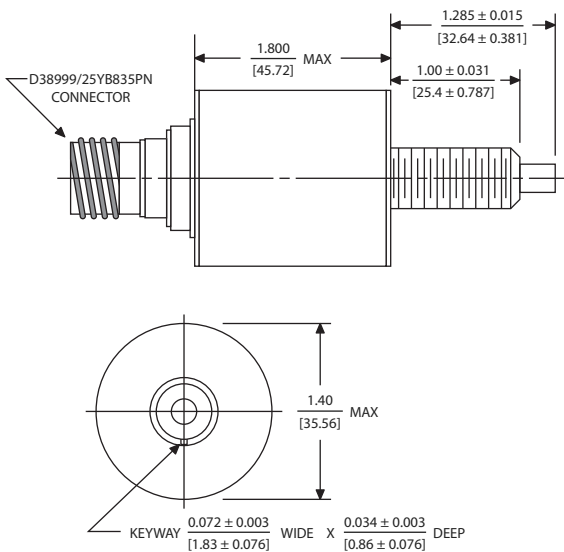
ROLLER PLUNGER SWITCH, 4 POLE

10AT490 - 1

| Basic Switch & Actuator/Body Style | | Operation | |
|------------------------------------|----------------|---------------|--|
| 10AT490 | | 1 4PDT | |
| <i>std</i> | | | |
| Actuating Force (max) | 160 oz | | |
| Release Force (min) | 16 oz | | |
| Pretravel (max) | .030" (.76mm) | | |
| Movement Diff. (max) | .020" (.51mm) | | |
| Overtravel (min) | .200" (5.08mm) | | |
| Max Force on Actuator | 30 lbs | | |
| Approx Weight (no leads) | 5.1 oz | | |

Actuating Force (max)
Release Force (min)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Max Force on Actuator
Approx Weight (no leads)

*Various connectors available



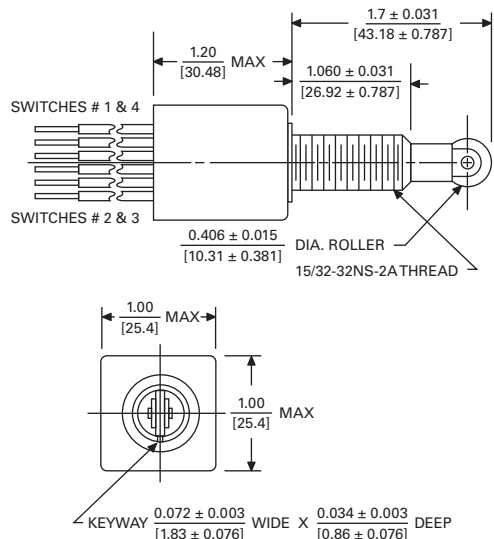
FLAT PLUNGER SWITCH, 4 POLE

10AT493 - 1

| Basic Switch & Actuator/Body Style | | Operation | |
|------------------------------------|----------------|---------------|--|
| 10AT493 | | 1 4PDT | |
| <i>std</i> | | | |
| Actuating Force (max) | 160 oz | | |
| Release Force (min) | 16 oz | | |
| Pretravel (max) | .030" (.76mm) | | |
| Movement Diff. (max) | .020" (.51mm) | | |
| Overtravel (min) | .200" (5.08mm) | | |
| Max Force on Actuator | 30 lbs | | |
| Approx Weight (no leads) | 5.1 oz | | |

Actuating Force (max)
Release Force (min)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Max Force on Actuator
Approx Weight (no leads)

*Various connectors available

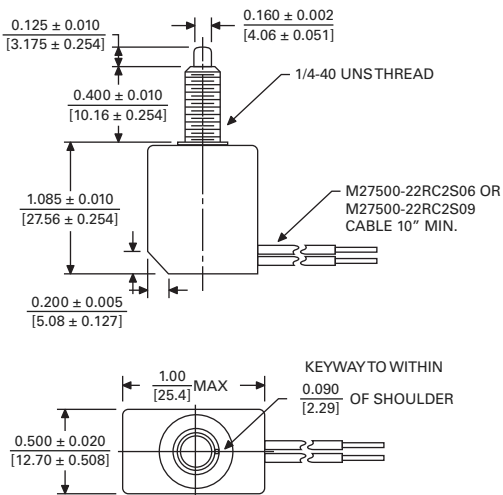


THREADED, SEALED ROLLER PLUNGER, 3 OR 4 POLE

AT408 - 7 3 - 1

| Basic Switch & Actuator/Body Style | | Operation | Termination | Lead Length |
|------------------------------------|----------------|----------------------|-------------------------|----------------------|
| AT408 | 10AT374 | 7 3PDT | 2 Parallel Leads | 1 6" (153mm) |
| <i>hi amp</i> | <i>hi amp</i> | 8 3PST, N.C. | | 2 12" (305mm) |
| 160 oz | 160 oz | 9 3PST, N.O. | | 3 18" (458mm) |
| 16 oz | 16 oz | 10 4PDT | | 4 24" (610mm) |
| Yes | Yes | 11 4PST, N.C. | | 5 30" (762mm) |
| Yes | Yes | 12 4PST, N.O. | | 6 36" (915mm) |
| Pretravel (max) | | .030" (.76mm) | | |
| Movement Diff. (max) | | .020" (.51mm) | | |
| Overtravel (min) | | .200" (5.1mm) | | |
| Positive Overtravel Stop | | Yes | | |
| Max Force on Actuator | | 30 lb | | |
| Approx Weight (no leads) | | 3.4 oz | | |

Actuating Force (max)
Release Force (max)
Plunger Seal / MIL-S-8805
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)

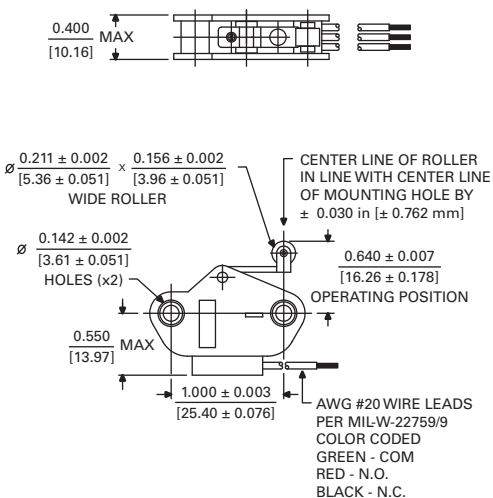


SMALLEST HERMETIC 2-POLE, PLUNGER (FLAT) SWITCH

10AT503 - 6 3 - 8

| Basic Switch & Actuator/Body Style | | Operation | Termination | Lead Length |
|------------------------------------|----------------|---------------------|--------------------|----------------------|
| 3AT149 | 10AT503 | 3 DPDT | 3 90° Leads | 1 6" (153mm) |
| <i>hi temp</i> | <i>hi amp</i> | 4 DPST, N.C. | | 2 12" (305mm) |
| 64 oz | 16 oz | 5 DPST, N.O. | | 3 18" (458mm) |
| Plunger Seal / MIL-S-8805 | | No | | |
| Pretravel (max) | | .010" (.254mm) | | |
| Movement Diff. (max) | | .010" (.254mm) | | |
| Overtravel (min) | | .095" (2.41mm) | | |
| Max Force on Actuator | | 20 lbs | | |
| Approx Weight (no leads) | | 1.0 oz | | |

Actuating Force (max)
Release Force (max)
Plunger Seal / MIL-S-8805
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Max Force on Actuator
Approx Weight (no leads)

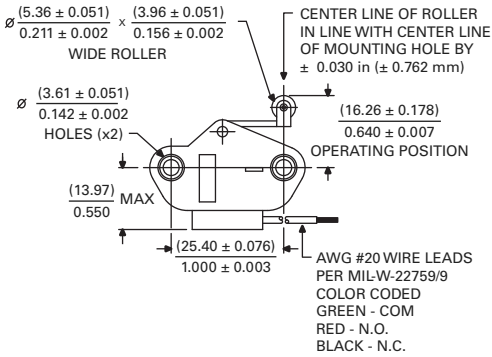
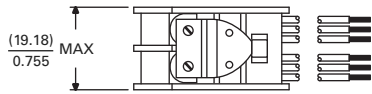


SIDE PLATE, RIGHT ARM, 1 POLE

AT355 - 2 3 - 8

| Basic Switch & Actuator/Body Style | | | Operation | Termination | Lead Length |
|------------------------------------|----------------|----------------|---------------------|--------------------|----------------------|
| AT355 | 3AT150 | 10AT313 | 0 SPDT | 3 90° Leads | 1 6" (153mm) |
| <i>std</i> | <i>hi temp</i> | <i>hi amp</i> | 1 SPST, N.C. | | 2 12" (305mm) |
| 24 oz | 4 oz | 4 oz | 2 SPST, N.O. | | 3 18" (458mm) |
| Release Force (max) | | 4 oz | | | |
| Pretravel (max) | | .040" (1.02mm) | | | |
| Movement Diff. (max) | | .030" (.76mm) | | | |
| Overtravel (min) | | .125" (3.18mm) | | | |
| Positive Overtravel Stop | | Yes | | | |
| Max Force on Actuator | | 10 lbs | | | |
| Approx Weight (no leads) | | 0.40 oz | | | |

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

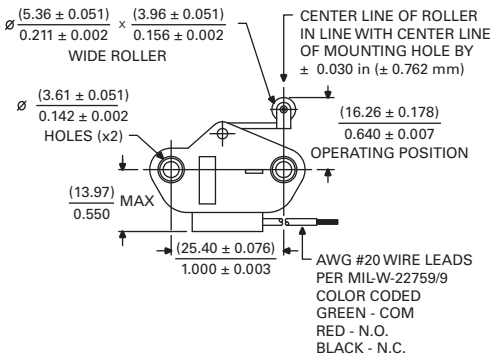
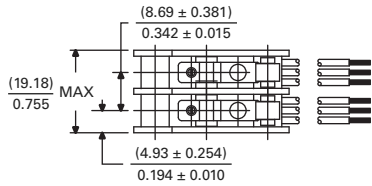


SIDE PLATE, RIGHT ARM, 2 POLE

10AT314 - 3 3 - 4

| Basic Switch & Actuator/Body Style | | Operation | Termination | Lead Length |
|------------------------------------|----------------|--------------------|-------------|-----------------|
| AT356 | 10AT314 | | | |
| <i>std</i> | <i>hi amp</i> | | | |
| Actuating Force (max) | 48 oz | 3 DPDT | 3 90° Leads | 1 6" (153mm) |
| Release Force (max) | 4 oz | 4 DPST, N.C. | | 2 12" (305mm) |
| Pretravel (max) | .040" (1.02mm) | 5 DPST, N.O. | | 3 18" (458mm) |
| Movement Diff. (max) | .040" (1.02mm) | 6 DPST, N.C / N.O. | | 4 24" (610mm) |
| Overtravel (min) | .125" (3.18mm) | | | 5 30" (762mm) |
| Positive Overtravel Stop | Yes | | | 6 36" (915mm) |
| Max Force on Actuator | 10 lbs | | | 7 42" (1067mm) |
| Approx Weight (no leads) | 0.70 oz | | | 8 48" (1220mm) |
| | | | | 9 60" (1524mm) |
| | | | | 10 72" (1829mm) |

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

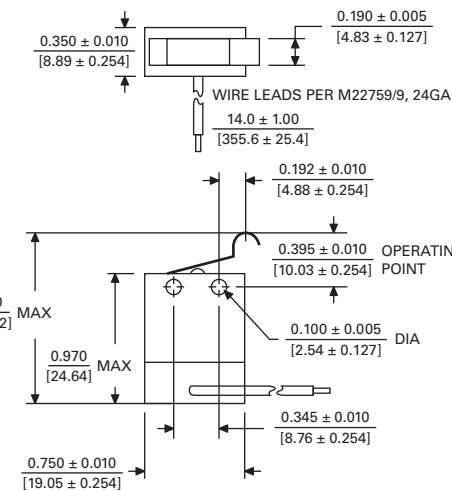


SIDE PLATE, RIGHT ARM, 2 POLE

10AT315 - 5 3 - 5

| Basic Switch & Actuator/Body Style | | Operation | Termination | Lead Length |
|------------------------------------|----------------|--------------------|-------------|-----------------|
| AT357 | 10AT315 | | | |
| <i>std</i> | <i>hi amp</i> | | | |
| Actuating Force (max) | 24 oz | 3 DPDT | 3 90° Leads | 1 6" (153mm) |
| Release Force (max) | 4 oz | 4 DPST, N.C. | | 2 12" (305mm) |
| Pretravel (max) | .040" (1.02mm) | 5 DPST, N.O. | | 3 18" (458mm) |
| Movement Diff. (max) | .030" (.76mm) | 6 DPST, N.C / N.O. | | 4 24" (610mm) |
| Overtravel (min) | .125" (3.18mm) | | | 5 30" (762mm) |
| Positive Overtravel Stop | Yes | | | 6 36" (915mm) |
| Max Force on Actuator | 10 lbs | | | 7 42" (1067mm) |
| Approx Weight (no leads) | 0.80 oz | | | 8 48" (1220mm) |
| | | | | 9 60" (1524mm) |
| | | | | 10 72" (1829mm) |

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

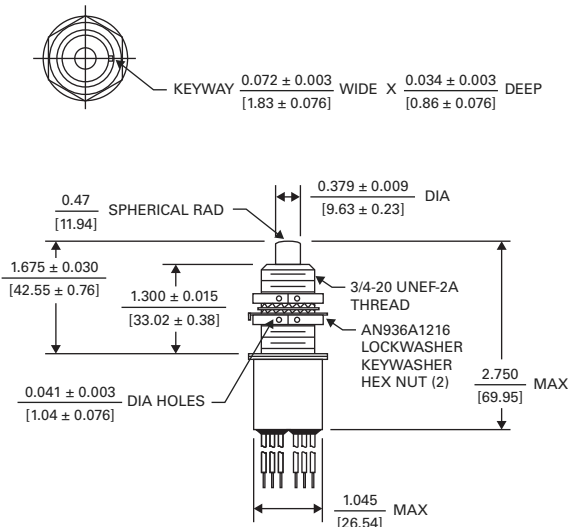


LEAF SPRING SWITCH, 1 POLE

10AT505 - 0 3 - 1

| Basic Switch & Actuator/Body Style | | Operation | Termination | Lead Length |
|------------------------------------|----------------|-----------|-------------|-----------------|
| 3AT151 | 10AT505 | | | |
| <i>hi temp</i> | <i>hi amp</i> | | | |
| Actuating Force (max) | 20 oz | 0 SPDT | 3 90° Leads | 1 6" (153mm) |
| Plunger Seal / MIL-S-8805 | Yes | | | 2 12" (305mm) |
| Pretravel (max) | .035" (.89mm) | | | 3 18" (458mm) |
| Release Force (max) | 4.0 oz | | | 4 24" (610mm) |
| Movement Diff. (max) | .010" (.254mm) | | | 5 30" (762mm) |
| Overtravel (min) | .065" (1.65mm) | | | 6 36" (915mm) |
| Positive Overtravel Stop | Yes | | | 7 42" (1067mm) |
| Max Force on Actuator | 5 lb | | | 8 48" (1220mm) |
| Approx Weight (no leads) | 0.6 oz | | | 9 60" (1524mm) |
| | | | | 10 72" (1829mm) |

Actuating Force (max)
Plunger Seal / MIL-S-8805
Pretravel (max)
Release Force (max)
Movement Diff. (max)
Overtravel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight (no leads)



ROUNDED PLUNGER SWITCH, 2 POLE

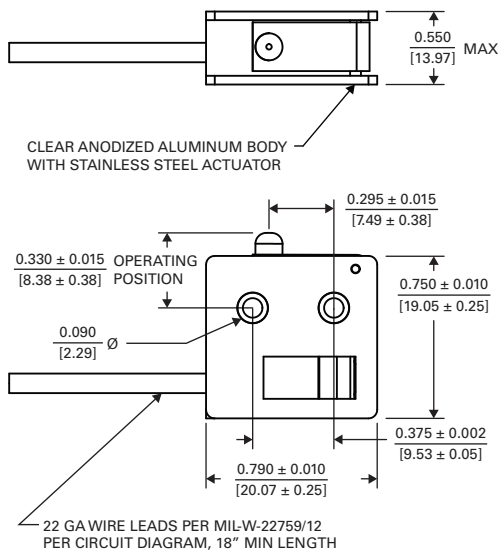
3AT152 - 3 2 - 10

| Basic Switch & Actuator/Body Style | Operation | Termination | Lead Length |
|------------------------------------|------------------|-----------------|-------------|
| 3AT152 | | | |
| High Temp (500°F) | | | |
| 3 DPDT | 2 Parallel Leads | 1 6" (153mm) | |
| 4 DPST, N.C. | | 2 12" (305mm) | |
| 5 DPST, N.O. | | 3 18" (458mm) | |
| 6 DPST, N.C / N.O. | | 4 24" (610mm) | |
| | | 5 30" (762mm) | |
| | | 6 36" (915mm) | |
| | | 7 42" (1067mm) | |
| | | 8 48" (1220mm) | |
| | | 9 60" (1524mm) | |
| | | 10 72" (1829mm) | |

Actuating Force (max)
Release Force (min)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Max Force on Actuator
Approx Weight (no leads)

Ref: MS24594-1 & M8805/41

*Various connectors available



SIDE PLATE, 1 POLE

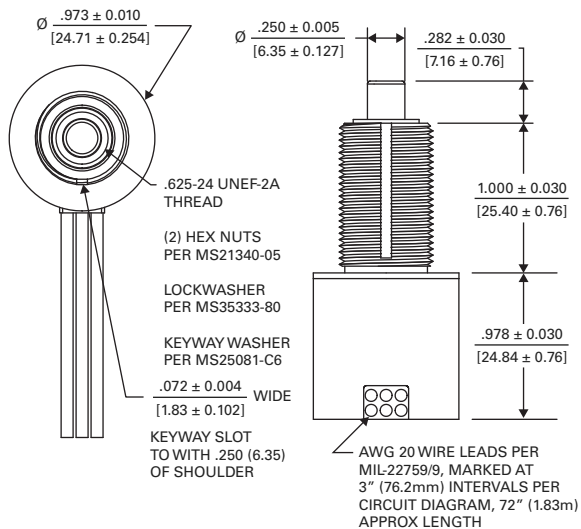
10AT511 - 0 3 - 10

| Basic Switch & Actuator/Body Style | Operation | Termination | Lead Length |
|------------------------------------|-------------|-----------------|-------------|
| 3AT137 10AT511 | | | |
| hi temp hi amp | | | |
| 0 SPDT | 3 90° Leads | 1 6" (153mm) | |
| 1 SPST, N.C. | | 2 12" (305mm) | |
| 2 SPST, N.O. | | 3 18" (458mm) | |
| | | 4 24" (610mm) | |
| | | 5 30" (762mm) | |
| | | 6 36" (915mm) | |
| | | 7 42" (1067mm) | |
| | | 8 48" (1220mm) | |
| | | 9 60" (1524mm) | |
| | | 10 72" (1829mm) | |

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

Ref: MS27216 & M8805/8

*Various connectors available



FLAT PLUNGER SWITCH, 2 POLE

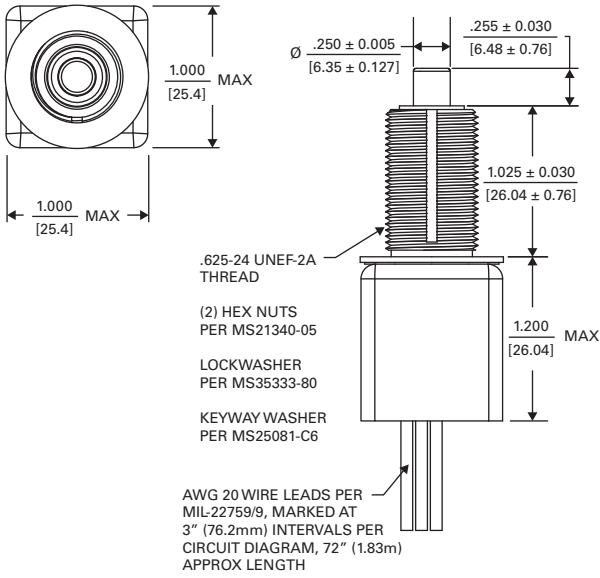
10AT506 - 3 2 - 10

| Basic Switch & Actuator/Body Style | Operation | Termination | Lead Length |
|------------------------------------|-------------------|-----------------|-------------|
| 10AT506 | | | |
| hi temp | | | |
| 3 DPDT | 2 Parallel Leads | 1 6" (153mm) | |
| 4 DPST, N.C. | | 2 12" (305mm) | |
| 5 DPST, N.O. | | 3 18" (458mm) | |
| 6 DPST, N.C / N.O. | 3 90° Angle Leads | 4 24" (610mm) | |
| | | 5 30" (762mm) | |
| | | 6 36" (915mm) | |
| | | 7 42" (1067mm) | |
| | | 8 48" (1220mm) | |
| | | 9 60" (1524mm) | |
| | | 10 72" (1829mm) | |

Actuating Force (max)
Release Force (min)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Max Force on Actuator
Approx Weight (no leads)

Ref: M8805/80-01

*Various connectors available



FLAT PLUNGER SWITCH, 3 or 4 POLE

10AT507 - 3 2 - 10

| Basic Switch & Actuator/Body Style | Operation | Termination | Lead Length |
|------------------------------------|----------------------|--------------------------|------------------------|
| 10AT507 | 7 3PDT | 2 Parallel Leads | 1 6" (153mm) |
| <i>hi temp</i> | 8 3PST, N.C. | | 2 12" (305mm) |
| | 9 3PST, N.O. | | 3 18" (458mm) |
| | 10 4PDT | 3 90° Angle Leads | 4 24" (610mm) |
| | 11 4PST, N.C. | | 5 30" (762mm) |
| | 12 4PST, N.O. | | 6 36" (915mm) |
| | | | 7 42" (1067mm) |
| | | | 8 48" (1220mm) |
| | | | 9 60" (1524mm) |
| | | | 10 72" (1829mm) |

Actuating Force (max)
Release Force (min)
Pretravel (max)
Movement Diff. (max)
Overtravel (min)
Max Force on Actuator
Approx Weight (no leads)

| |
|----------------|
| 96 to 192 oz |
| 64 oz |
| .030" (7.62mm) |
| .010" (.254mm) |
| .250" (6.35mm) |
| 192 oz |
| 7.4 oz |

Ref: M8805/80-04

*Various connectors available



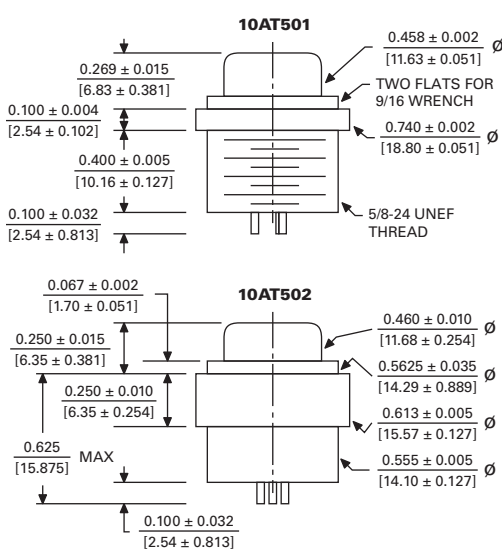
KLIXON® | 10AT / 11AT / 12AT Series

Hermetic Control Switch Packages

INTRODUCTION

The Klixon® 10AT series are stainless steel, hermetic position limit switches, Klixon® 11AT and 12AT series are position control switches. All are ideal for extremely harsh and demanding environments as found in aircraft, military, aerospace, and aircraft engines applications. Klixon® precision hermetic position switches have been used for over 40 years in a wide range of applications, and can be found on virtually all commercial and military aircraft, as well as various space vehicles and satellites worldwide.

| SPECIFICATIONS | |
|---|---|
| Current Rating (Resistance Inductive Lamp) | 4 amps, 28VDC 1 amp, 28VDC 2 amp, 28VDC |
| Dielectric Strength | 1050 volts (RMS) Terminal to Case, 800 volts (RMS) Terminal to Terminal |
| Life Cycles | 25,000 cycles @ rated load, mechanical life of 100,000 cycles |
| Ambient Temperature Range | -85°F to +275°F (-65°C to +135°C) |
| Seal | Hermetic per MIL-PRF-8805, design enclosure 5 |
| Max Leak Rate | 1x10 ⁻⁸ C.C. std. HE/sec @ 1 ATM differential |
| Voltage Drop at 1 amp | 0.040 volts max |
| Insulation | 100 megaohms min |
| Vibration Resistance | 65G, 10-2000Hz, .5 DA or 65 G RMS |
| Shock Resistance | 200 G, 6 ms sawtooth |



HERMETIC PUSH BUTTON MOMENTARY SWITCH

10AT502 - 1 - 0 2 - 10

| Basic Switch & Actuator/Body Style | Button Color | Operation | Termination | Lead Length |
|------------------------------------|----------------|---------------------|-------------------------|------------------------|
| 10AT501 | 1 Red | 0 SPDT | 1 Solder Pins | 1 6" (153mm) |
| 10AT502 | 2 Black | 1 SPDT, N.C. | 2 Parallel Leads | 2 12" (305mm) |
| | 3 Gray | 2 SPDT, N.O. | | 3 18" (458mm) |
| | | | | 4 24" (610mm) |
| | | | | 5 30" (762mm) |
| | | | | 6 36" (915mm) |
| | | | | 7 42" (1067mm) |
| | | | | 8 48" (1220mm) |
| | | | | 9 60" (1524mm) |
| | | | | 10 72" (1829mm) |

Actuating Force (max) 40 oz 24 oz

Pretravel (max) .040" (1.02mm)

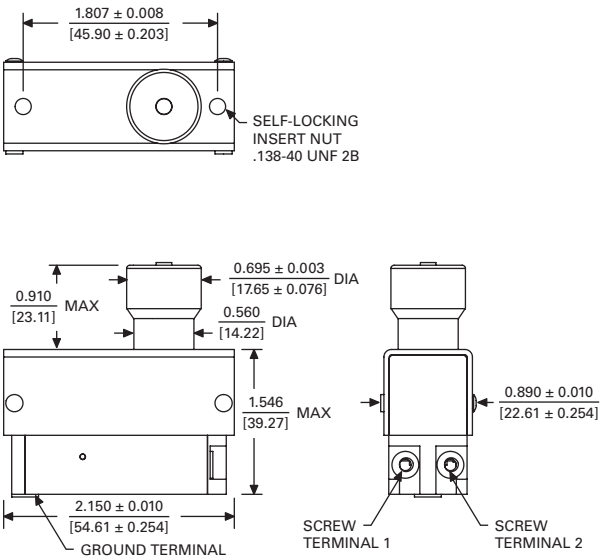
Movement Diff. (max) .030" (.76mm)

Total Travel (min) .050" (1.27mm) .125" (3.18mm)

Max Force on Actuator 10 lbs 10 lbs

Approx Weight 0.80 oz 0.80 oz

Termination details: ± 0.104 MAX [2.64]



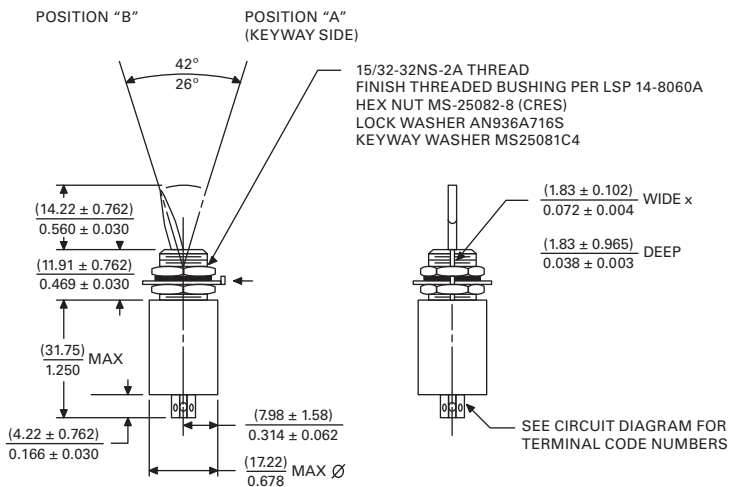
FOOT SWITCH (CONTROL SWITCH)

10AT504 - 5 1 - 5

| Basic Switch & Actuator/Body Style | Operation | Termination | Lead Length |
|------------------------------------|---------------------|-----------------|------------------------|
| 10AT504 | 5 DPST, N.O. | 1 Screws | 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) |

Actuating Force (max)
Pretravel (max)
Movement Diff. (max)
Total Travel (min)
Positive Overtravel Stop
Max Force on Actuator
Approx Weight

| |
|----------------|
| 112 to 176 oz |
| .090" (2.29mm) |
| .050" (1.27mm) |
| .165" (4.19mm) |
| Yes |
| 20 lbs |
| 0.9 oz |



TOGGLE SWITCH

11AT1 - 0 1

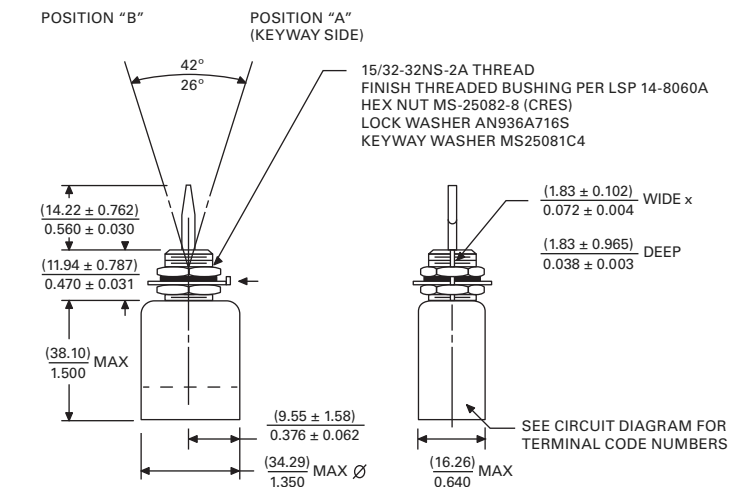
| Basic Switch & Actuator/Body Style | Operation | Termination |
|------------------------------------|---------------------|----------------------|
| 11AT1 | 0 SPDT | 1 Solder Pins |
| | 1 SPST, N.C. | |
| | 2 SPST, N.O. | |

Actuating Force
Current Capacity (28Vdc)

112 to 176 oz
3.5A (res) / 1.5A (ind)

± 0.104 MAX
↑ [2.64]

| Toggle Position | Toggle Action | Circuit |
|-----------------|---------------|----------------|
| POSITION "A" | MAINTAINED | 1 2 3 ○ ○ ○ |
| POSITION "B" | MAINTAINED | 1 2 3 ○ ○ ○ |



TOGGLE SWITCH, SP3T

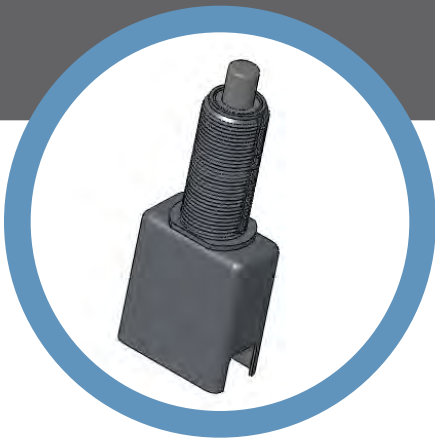
12AT1 - 3 1

| Basic Switch & Actuator/Body Style | Operation | Termination |
|------------------------------------|---------------|----------------------|
| 12AT1 | 3 SP3T | 1 Solder Pins |

Actuating Force
Current Capacity (28Vdc)

16 to 64 oz
3.5A (res) / 1.5A (ind)

| Toggle Position | Toggle Action | Circuit |
|-----------------|---------------|---------------------|
| POSITION "A" | MAINTAINED | 1 3 4 ○ ○ ○ 2 |
| CENTER | MAINTAINED | 1 3 4 ○ ○ ○ 2 |
| POSITION "B" | MAINTAINED | 1 3 4 ○ ○ ○ 2 |



KLIXON® | Military Qualified 10AT Series

Snap Action Precision Position Switches

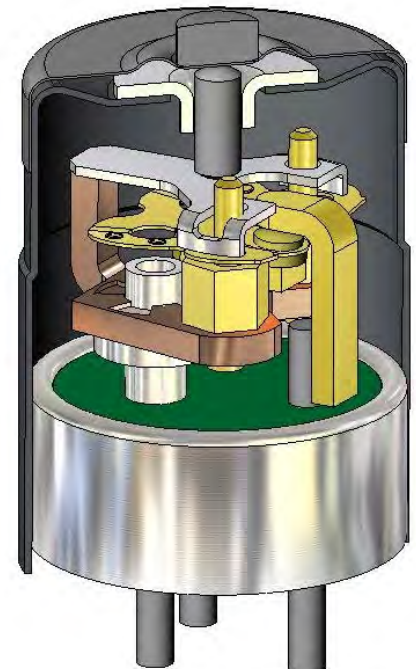
FEATURES

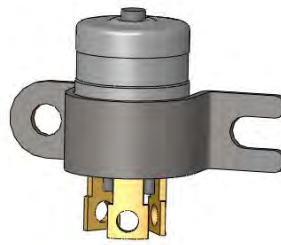
- Stainless steel, hermetic seal construction
- Rated up to 4 amps, 30VDC
- MIL-PRF-8805 qualified
- Various mounting configurations for custom applications
- Excellent shock and vibration resistance
- Distributor stock available

INTRODUCTION

The Klixon® 10AT series are hermetic position switches ideal for extremely harsh and demanding environments as found in aircraft, military, aerospace, and aircraft engines applications. Klixon precision hermetic position switches have been used for over 40 years in a wide range of applications, and can be found on virtually all commercial and military aircraft, as well as various space vehicles and satellites worldwide.

| SPECIFICATIONS | |
|-----------------------------------|---|
| Current Rating, Resistance | 4 amps, 28VDC |
| Current Rating, Inductive | 1 amp, 28VDC |
| Current Rating, Lamp | 2 amps, 28VDC |
| Dielectric Strength | 1050 volts (RMS) Terminal to Case 800 volts (RMS) Terminal to Terminal |
| Life Cycles | 25,000 cycles @ rated load, mechanical life of 100,000 cycles |
| Ambient Temperature Range | -85°F to +275°F (-65°C to +135°C) |
| Seal | Hermetic per MIL-PRF-8805, design enclosure 5 |
| Max Leak Rate | 1x10 ⁻⁸ C.C. std. HE/sec @ 1 ATM differential |
| Voltage Drop at 1 amp | 0.040 volts max |
| Insulation | 100 megaohms min |
| Vibration Resistance | 65G, 10-2000Hz, .5 DA or 65 G RMS |
| Shock Resistance | 200 G, 6 ms sawtooth |

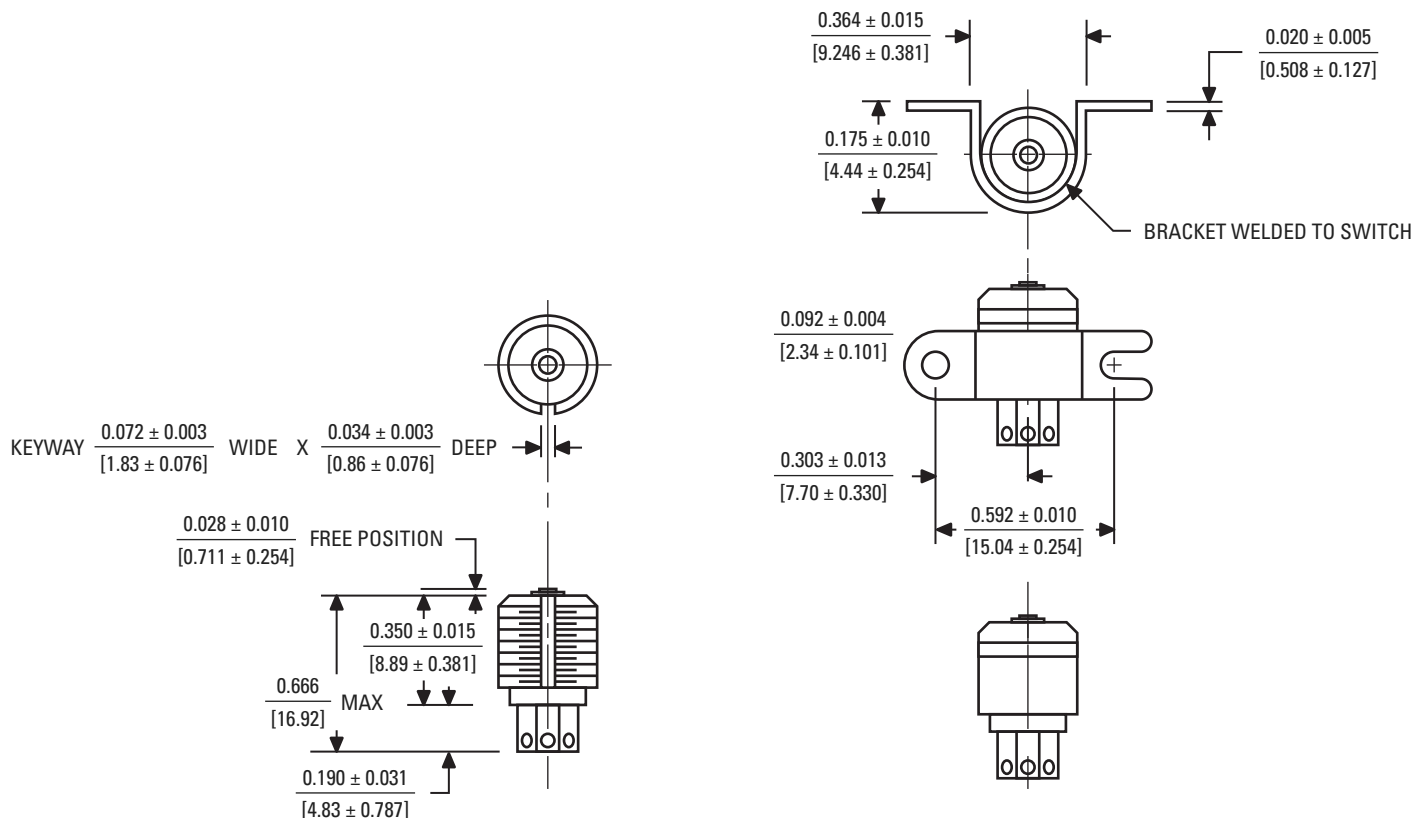




MIL-S-8805 CROSS REFERENCE CHART (SPDT)

| Mil Spec | Sensata PN | Plunger Type | Wire Leads | Threaded Mount | Actuating Force | Movement Differential | Pretravel | Overtravel | Release Force |
|--------------|--------------|--------------|------------|----------------|-----------------|-----------------------|------------|------------|---------------|
| M8805/68-022 | 10AT117-01 | Flat | No Wires | None | 30 oz max | 0.005" max | 0.009" max | 0.002" min | 4 oz min |
| M8805/68-023 | 10AT17-01 | Flat | No Wires | 7/16-32NS-2A | 30 oz max | 0.005" max | 0.009" max | 0.002" min | 4 oz min |
| M8805/68-024 | 10AT17-02-10 | Flat | Parallel | 7/16-32NS-2A | 30 oz max | 0.005" max | 0.009" max | 0.002" min | 4 oz min |
| M8805/68-025 | 10AT17-03-10 | Flat | 90° Angle | 7/16-32NS-2A | 30 oz max | 0.005" max | 0.009" max | 0.002" min | 4 oz min |
| M8805/68-026 | 10AT15-01 | Flat | No Wires | Bracket Mount | 30 oz max | 0.005" max | 0.009" max | 0.002" min | 4 oz min |
| M8805/68-027 | 10AT15-02-10 | Flat | Parallel | Bracket Mount | 30 oz max | 0.005" max | 0.009" max | 0.002" min | 4 oz min |
| M8805/68-028 | 10AT15-03-10 | Flat | 90° Angle | Bracket Mount | 30 oz max | 0.005" max | 0.009" max | 0.002" min | 4 oz min |

DIMENSIONAL DRAWINGS – Threaded Mount (10AT17-01), Basic Switch (10AT117-01), Bracket Mount (10AT15-01), Flat Plunger

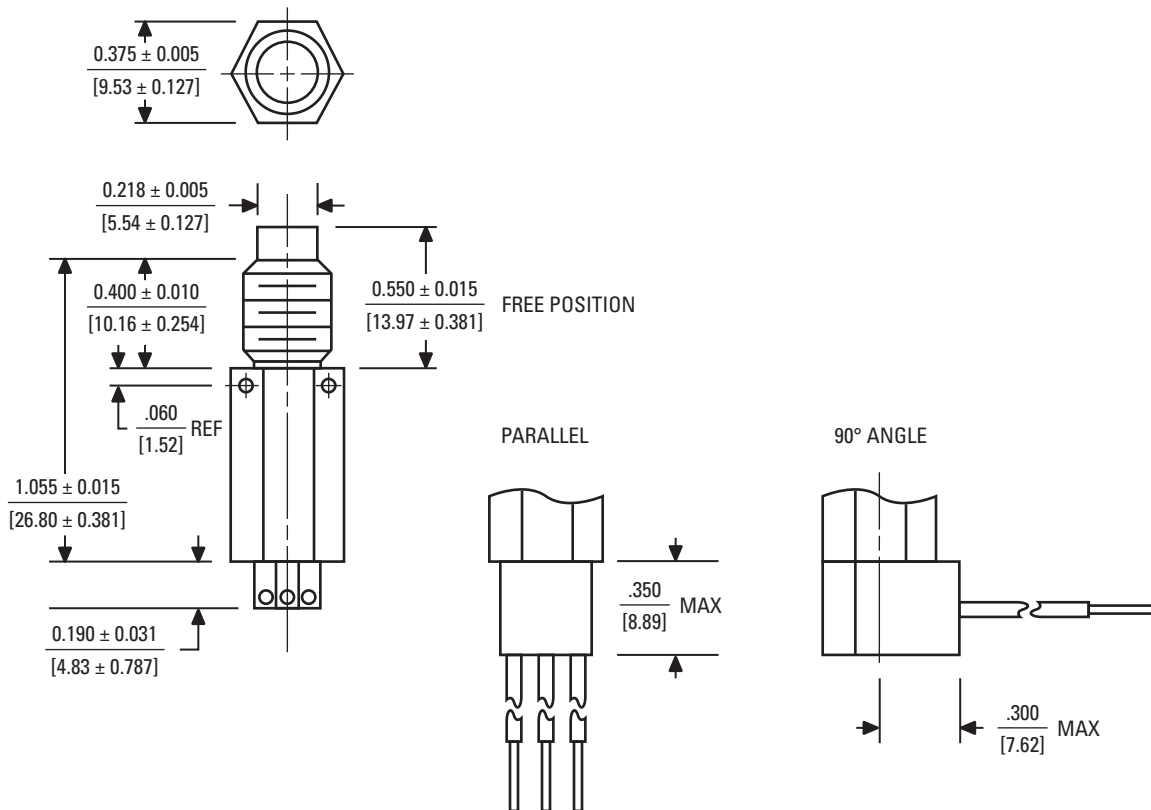




MIL-S-8805 CROSS REFERENCE CHART (SPDT)

| Mil Spec | Sensata PN | Plunger Type | Wire Leads | Threaded Mount | Actuating Force | Movement Differential | Pretravel | Overtravel | Release Force |
|--------------|---------------|--------------|------------|---------------------|-----------------|-----------------------|------------|------------|---------------|
| M8805/72-033 | 10AT363-02-10 | Flat | Parallel | 5/16-24UNF-2A | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/72-034 | 10AT361-02-10 | Flat | Parallel | 5/16-24UNF-2A Short | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/72-035 | 10AT363-03-10 | Flat | 90° Angle | 5/16-24UNF-2A | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/72-036 | 10AT361-03-10 | Flat | 90° Angle | 5/16-24UNF-2A Short | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/72-037 | 10AT364-02-10 | Spherical | Parallel | 5/16-24UNF-2A | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/72-038 | 10AT362-02-10 | Spherical | Parallel | 5/16-24UNF-2A Short | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/72-039 | 10AT364-03-10 | Spherical | 90° Angle | 5/16-24UNF-2A | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/72-040 | 10AT362-03-10 | Spherical | 90° Angle | 5/16-24UNF-2A Short | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/73-013 | 10AT7-02-10 | Flat | Parallel | 3/8-32 NEF-2A | 104 oz max | 0.010" max | 0.020" max | 0.125" min | 24 oz min |
| M8805/73-014 | 10AT7-03-10 | Flat | 90° Angle | 3/8-32 NEF-2A | 104 oz max | 0.010" max | 0.020" max | 0.125" min | 24 oz min |
| M8805/73-015 | 10AT76-02-10 | Spherical | Parallel | 3/8-32 NEF-2A | 104 oz max | 0.010" max | 0.020" max | 0.125" min | 24 oz min |
| M8805/73-016 | 10AT76-03-10 | Spherical | 90° Angle | 3/8-32 NEF-2A | 104 oz max | 0.010" max | 0.020" max | 0.125" min | 24 oz min |

DIMENSIONAL DRAWINGS – Threaded Mount, Flat Plunger, Hex Body Configuration (10AT363-01, 10AT363-02, 10AT363-03)

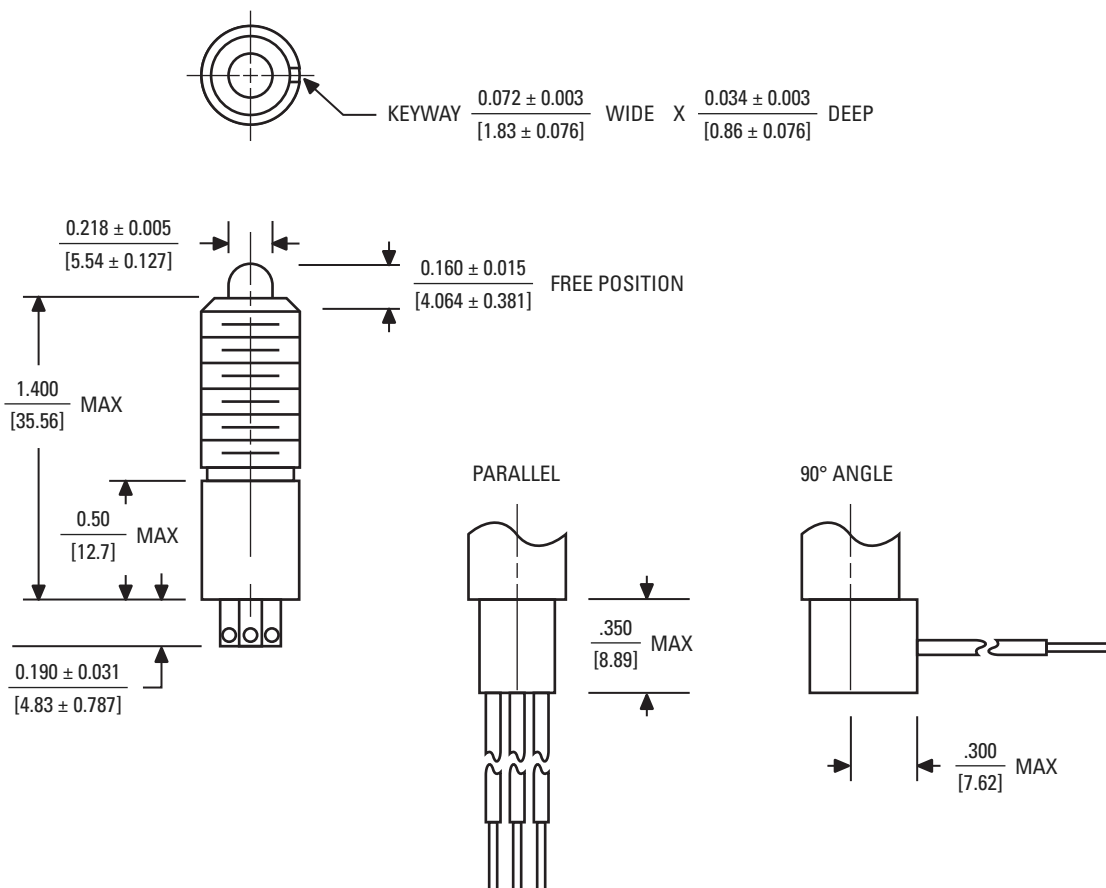




MIL-S-8805 CROSS REFERENCE CHART (SPDT)

| Mil Spec | Sensata PN | Plunger Type | Wire Leads | Threaded Mount | Actuating Force | Movement Differential | Pretravel | Overtravel | Release Force |
|--------------|---------------|-------------------|------------|----------------|-----------------|-----------------------|------------|------------|---------------|
| M8805/74-035 | 10AT366-02-10 | Flat | Parallel | 15/32-32NS-2A | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/74-036 | 10AT368-02-10 | Roller | Parallel | 15/32-32NS-2A | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/74-037 | 10AT366-03-10 | Flat | 90° Angle | 15/32-32NS-2A | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/74-038 | 10AT368-03-10 | Roller | 90° Angle | 15/32-32NS-2A | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/74-039 | 10AT369-02-10 | Flat, O-Ring | Parallel | 15/32-32NS-2A | 112 oz max | 0.005" max | 0.020" max | 0.125" min | 24 oz min |
| M8805/74-040 | 10AT371-02-10 | Roller, O-Ring | Parallel | 15/32-32NS-2A | 112 oz max | 0.005" max | 0.020" max | 0.125" min | 24 oz min |
| M8805/74-041 | 10AT369-03-10 | Flat, O-Ring | 90° Angle | 15/32-32NS-2A | 112 oz max | 0.005" max | 0.020" max | 0.125" min | 24 oz min |
| M8805/74-042 | 10AT371-03-10 | Roller, O-Ring | 90° Angle | 15/32-32NS-2A | 112 oz max | 0.005" max | 0.020" max | 0.125" min | 24 oz min |
| M8805/74-043 | 10AT367-02-10 | Spherical | Parallel | 15/32-32NS-2A | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/74-044 | 10AT367-03-10 | Spherical | 90° Angle | 15/32-32NS-2A | 30 oz max | 0.005" max | 0.010" max | 0.125" min | 4 oz min |
| M8805/74-045 | 10AT370-02-10 | Spherical, O-Ring | Parallel | 15/32-32NS-2A | 112 oz max | 0.005" max | 0.020" max | 0.125" min | 24 oz min |
| M8805/74-046 | 10AT370-03-10 | Spherical, O-Ring | 90° Angle | 15/32-32NS-2A | 112 oz max | 0.005" max | 0.020" max | 0.125" min | 24 oz min |

DIMENSIONAL DRAWINGS – Threaded Mount, Spherical Plunger Configuration (10AT367-01, 10AT367-02, 10AT367-03)

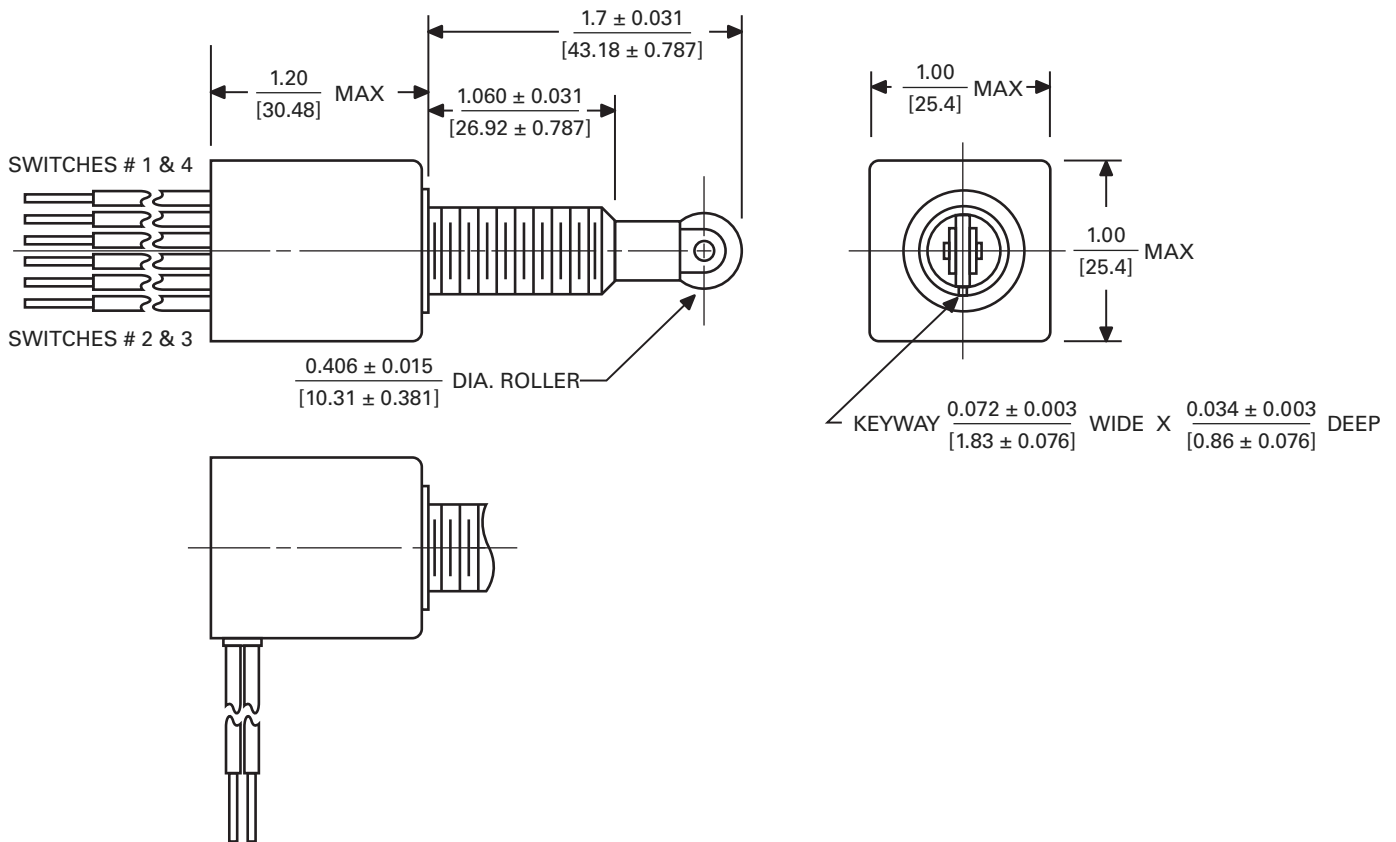


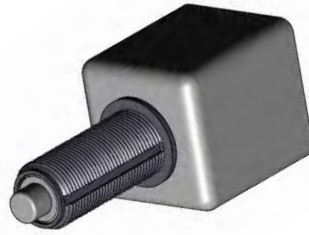


MIL-S-8805 CROSS REFERENCE CHART (2PDT)

| Mil Spec | Sensata PN | Plunger Type | Wire Leads | Threaded Mount | Actuating Force | Movement Differential | Pretravel | Overtravel | Release Force |
|--------------|---------------|--------------|------------|----------------|-----------------|-----------------------|------------------|------------|---------------|
| M8805/70-033 | 10AT372-32-10 | Flat | Parallel | 15/32-32NS-2A | 160 oz max | 0.020" max | 0.020" to 0.030" | 0.200" min | 16 oz min |
| M8805/70-034 | 10AT373-32-10 | Roller | Parallel | 15/32-32NS-2A | 160 oz max | 0.020" max | 0.020" to 0.030" | 0.200" min | 16 oz min |
| M8805/70-035 | 10AT372-33-10 | Flat | 90° Angle | 15/32-32NS-2A | 160 oz max | 0.020" max | 0.020" to 0.030" | 0.200" min | 16 oz min |
| M8805/70-036 | 10AT373-33-10 | Roller | 90° Angle | 15/32-32NS-2A | 160 oz max | 0.020" max | 0.020" to 0.030" | 0.200" min | 16 oz min |

DIMENSIONAL DRAWINGS – Threaded Mount, Roller Plunger, 4PDT Configuration (10AT374-102-10 & 10AT374-103-10)

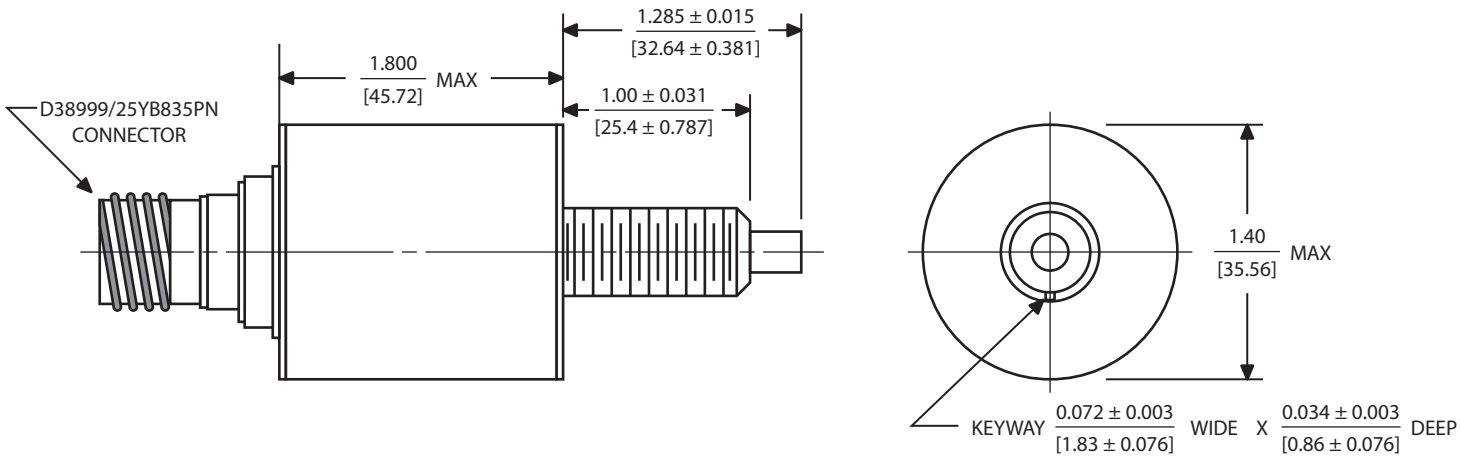




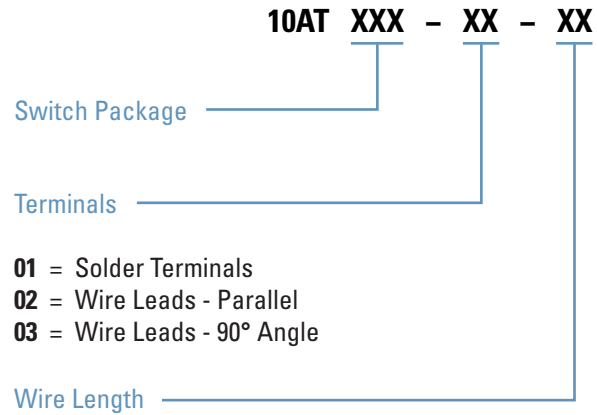
MIL-S-8805 CROSS REFERENCE CHART (4PDT)

| Mil Spec | Sensata PN | Plunger Type | Connector | Threaded Mount | Actuating Force | Movement Differential | Pretravel | Overtravel | Release Force |
|---------------|----------------|--------------|---------------------------|----------------|-----------------|-----------------------|------------|------------|---------------|
| M8805/116-022 | 10AT493-1 | Flat | D38999/25YB35PN Connector | 15/32-32NS-2A | 160 oz max | 0.020" max | 0.030" max | 0.200" min | 16 oz min |
| M8805/70-037 | 10AT375-102-10 | Flat | Parallel | 15/32-32NS-2A | 160 oz max | 0.020" max | 0.030" max | 0.200" min | 16 oz min |
| M8805/70-038 | 10AT374-102-10 | Roller | Parallel | 15/32-32NS-2A | 160 oz max | 0.020" max | 0.030" max | 0.200" min | 16 oz min |
| M8805/70-039 | 10AT375-103-10 | Flat | 90° Angle | 15/32-32NS-2A | 160 oz max | 0.020" max | 0.030" max | 0.200" min | 16 oz min |
| M8805/70-040 | 10AT374-103-10 | Roller | 90° Angle | 15/32-32NS-2A | 160 oz max | 0.020" max | 0.030" max | 0.200" min | 16 oz min |

DIMENSIONAL DRAWINGS – Threaded Mount, 4PDT, Flat Plunger Configuration (10AT493)



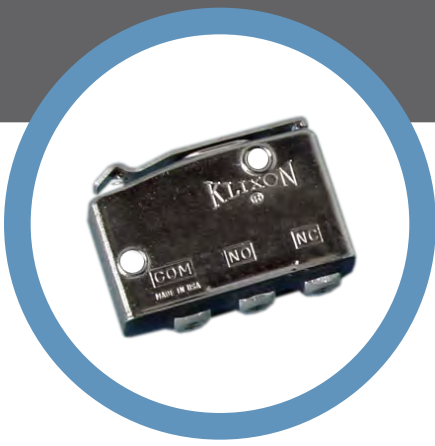
STANDARD PART NUMBER BUILDER



- 01** = Solder Terminals
- 02** = Wire Leads - Parallel
- 03** = Wire Leads - 90° Angle

No dash # needed if solder terminals

- 1** = 6" (152mm)
- 2** = 12" (305mm)
- 3** = 18" (457mm)
- 4** = 24" (610mm)
- 5** = 30" (762mm)
- 6** = 36" (914mm)
- 7** = 42" (1067mm)
- 8** = 48" (1219mm)
- 9** = 60" (1524mm)
- 10** = 72" (1829mm)



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.

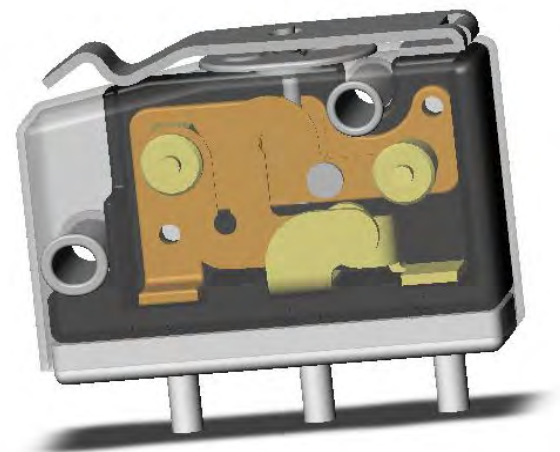
The switching element is the versatile Klixon® sine switch. This simple, one-piece element eliminates knife edges and high friction joints. Rigidly supported at both ends and accurately prestressed in tension, the sine switch features outstanding resistance to shock and vibration.

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

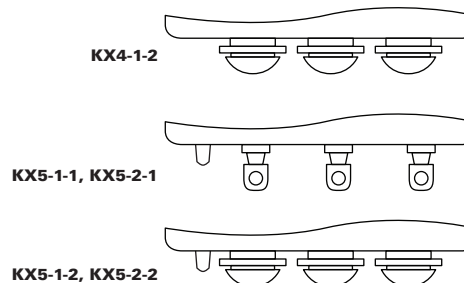
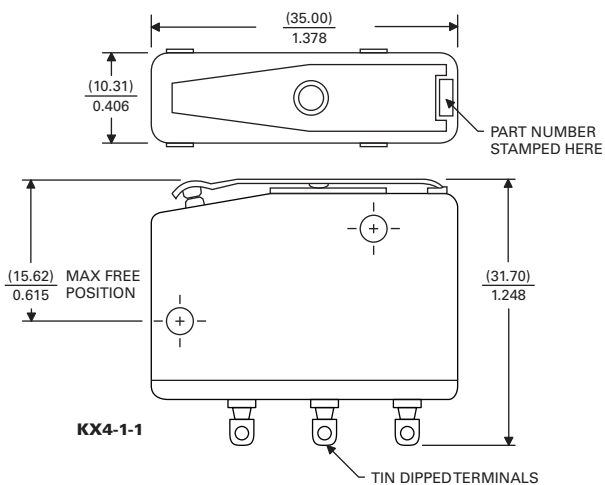
KX - 4 - 1 - 1

| 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 |

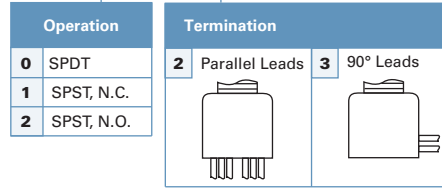


001 SINE SWITCH PACKAGE, 1 POLE (10 amps)

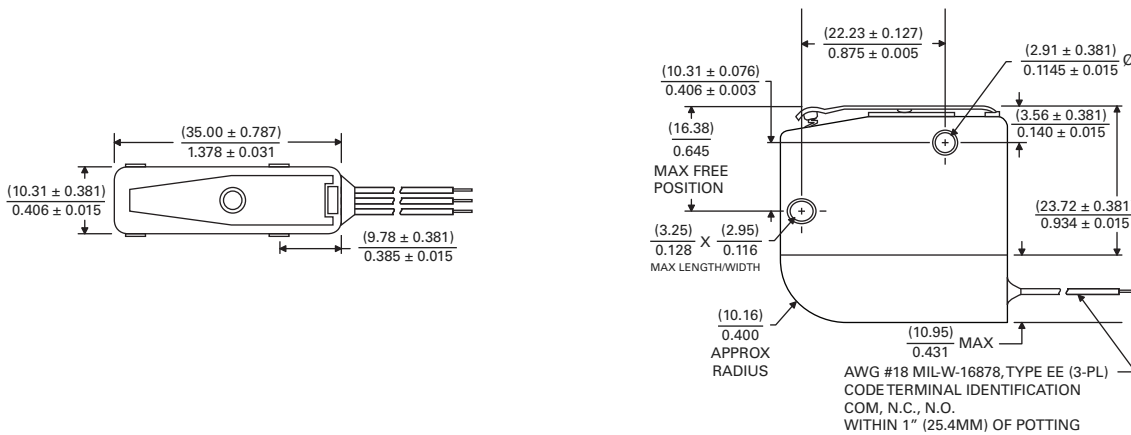
| Basic Switch | | |
|---------------------------|--|---------------------|
| KX4 | KX5 | KX52 |
| sealed | hermetic | hermetic hi temp |
| Actuating Force (max) | 24 oz | 24 oz |
| Release Force (max) | 3 oz | 3 oz |
| Pretravel (max) | .025" (1.02mm) | |
| Movement Diff. (max) | .020" (.76mm) | |
| 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) |

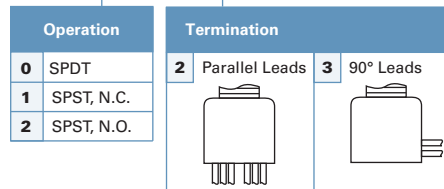


002 SIDE PLATE SWITCH PACKAGE, 1 POLE (10 amps)

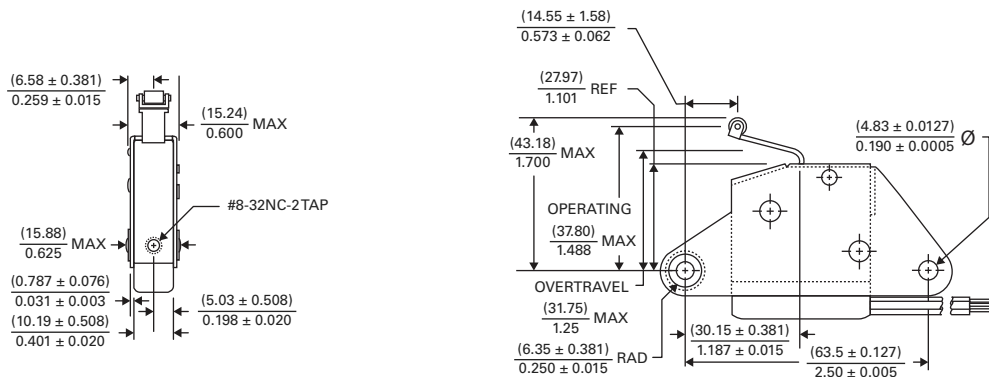
| Basic Switch | | |
|-----------------------|----------------|--------|
| KX4 | KX5 | KX52 |
| std | hi amp | hi amp |
| Actuating Force (max) | 48 oz | 48 oz |
| Release Force (max) | 8 oz | 8 oz |
| Movement Diff. (max) | .090" (2.29mm) | |

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)

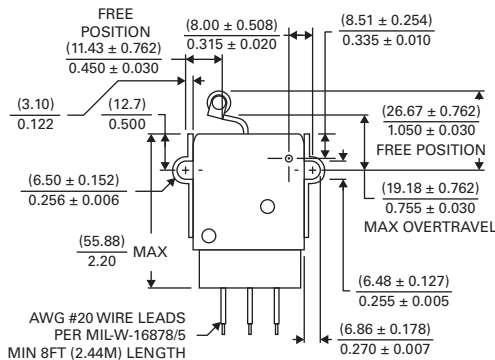
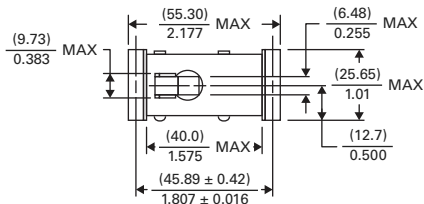
| Basic Switch | | |
|---------------------------|---------------------------------|--------|
| KX4 | KX5 | KX52 |
| std | hi amp | hi amp |
| Actuating Force (max) | 96 oz | 96 oz |
| Overtravel Force (max) | 160 oz | 160 oz |
| Pretravel (max) | .100" (2.54mm) | |
| Movement Diff. (max) | .06" (1.53mm) | |
| 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)

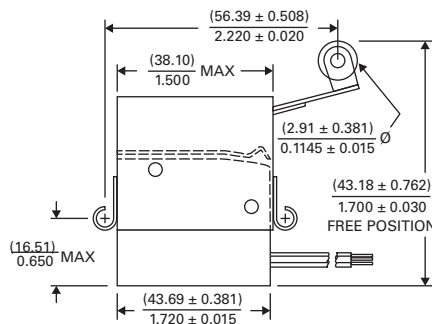
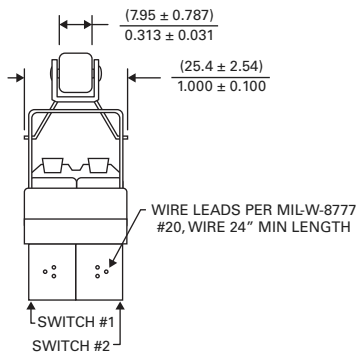
| Basic Switch | | |
|-----------------------|-----------------|------------------|
| KX4 | KX5 | KX52 |
| sealed | hermetic | hermetic hi temp |
| Actuating Force (max) | 160 oz | 160 oz |
| Release Force (max) | 32 oz | 32 oz |
| Pretravel (max) | .150" (3.81mm) | |
| Movement Diff. (max) | .020" (.76mm)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

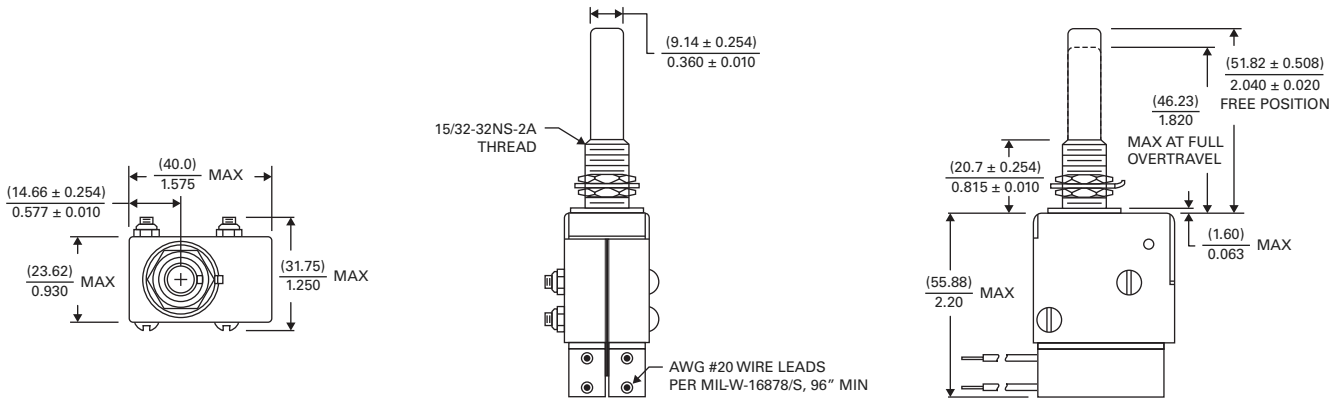
| Basic Switch | | |
|---------------------------|---------------------------------|--------|
| KX4 | KX5 | KX52 |
| std | hi amp | hi amp |
| Actuating Force (max) | 96 oz | 96 oz |
| Release Force (max) | 32 oz | 32 oz |
| Pretravel (max) | .075" (1.91mm) | |
| Movement Diff. (max) | .030" (.76mm) | |
| 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)

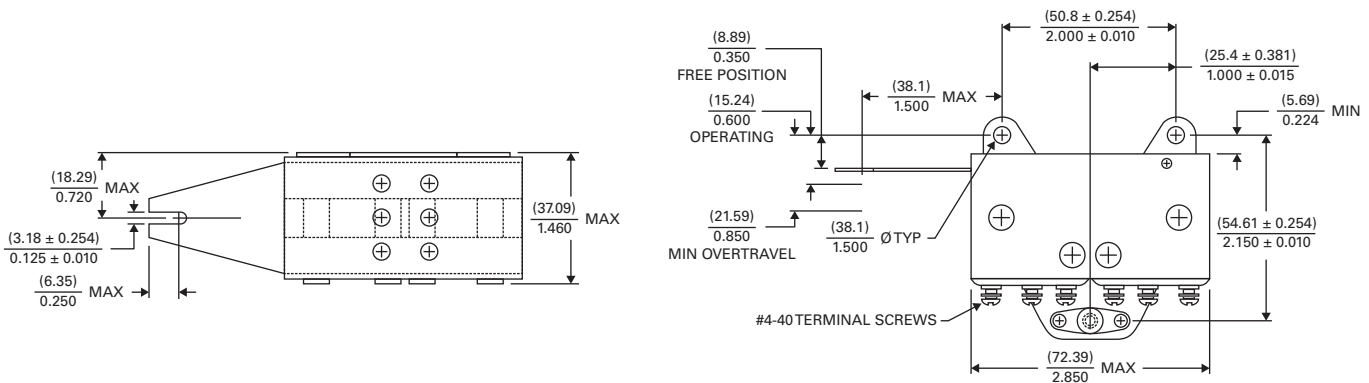
| Basic Switch | | |
|-----------------------|----------------|--------|
| KX4 | KX5 | KX52 |
| std | hi amp | hi amp |
| Actuating Force (max) | 48 oz | 48 oz |
| Release Force (max) | 8 oz | 8 oz |
| Movement Diff. (max) | .090" (2.29mm) | |

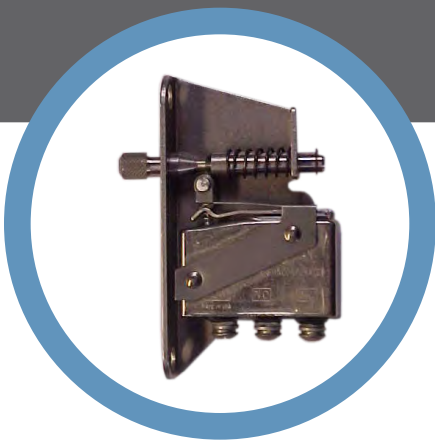
Actuating Force (max)
Release Force (max)
Movement Diff. (max)

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) |





KLIXON® | 4HVS Series

High Performance Hermetic Interlock Switches

FEATURES

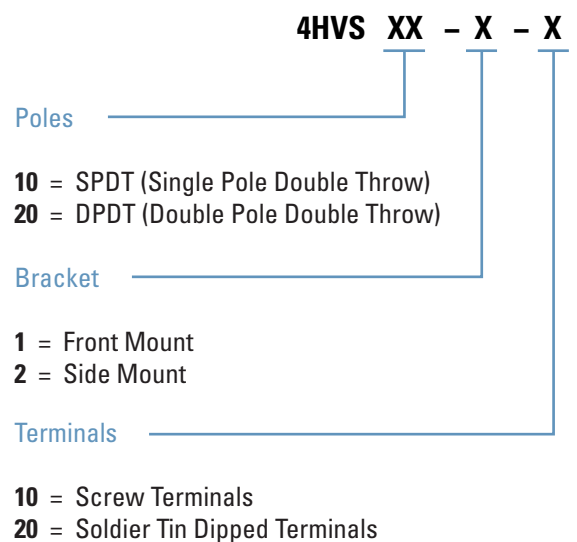
- Explosion-proof device
- Stainless steel, hermetic seal construction
- Rated to 10 amps
- Rated for 28 VDC and 110 VAC, 60-900 Hz
- Available in single pole, double throw (SPDT) and double pole, double throw (DPDT)
- Screw or soldier terminals

INTRODUCTION

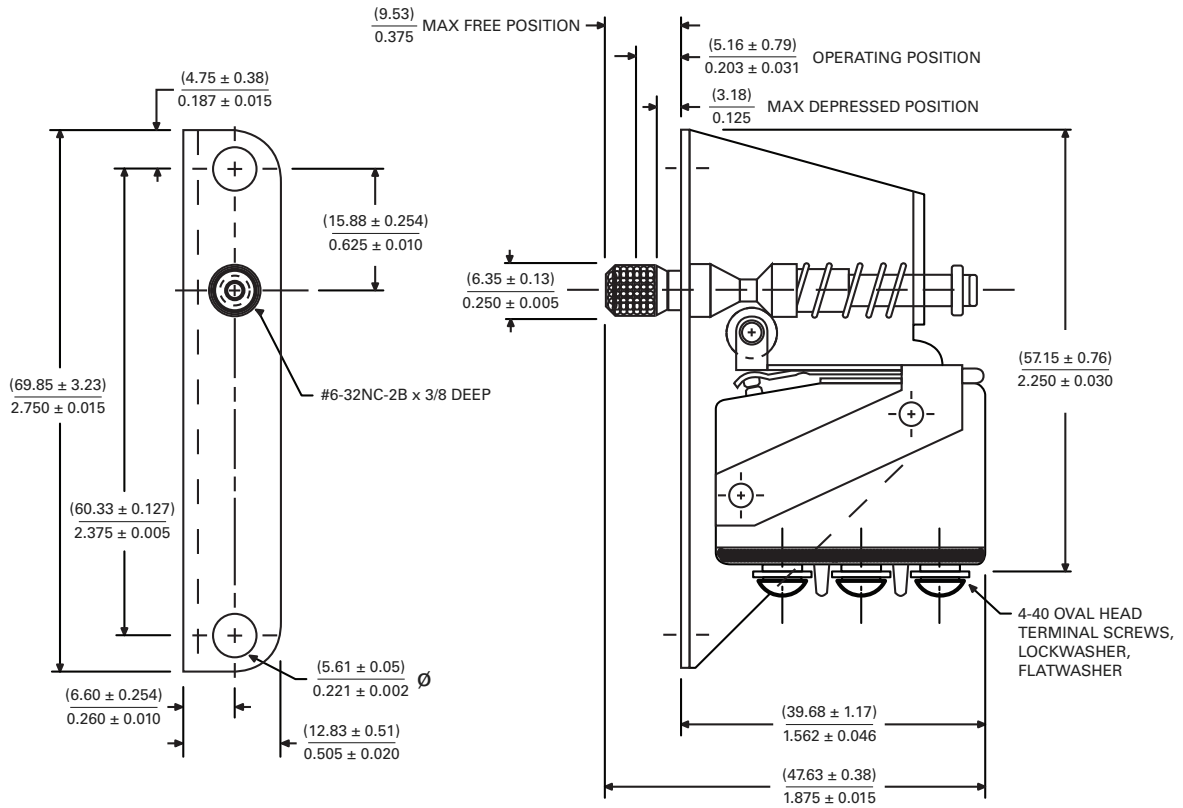
The Klixon® 4HVS series of interlock switches utilizes a hermetically sealed snap-acting sine switch to create a high reliability yet cost effective solution. The 4HVS Series was developed for the most severe environments, and the most demanding applications. Ideal for guarding engine compartments, access and maintenance hatches, electrical cabinets, machinery, and industrial equipment. Its explosion-proof design and one-piece steel case construction make it well suited for fuel wetted areas. Its high vibration resistance makes it an ideal choice for ground and air vehicle applications.

Our part number building block approach utilizes standard components and provides a wide variety of options...while retaining the cost advantage of off-the-shelf devices.

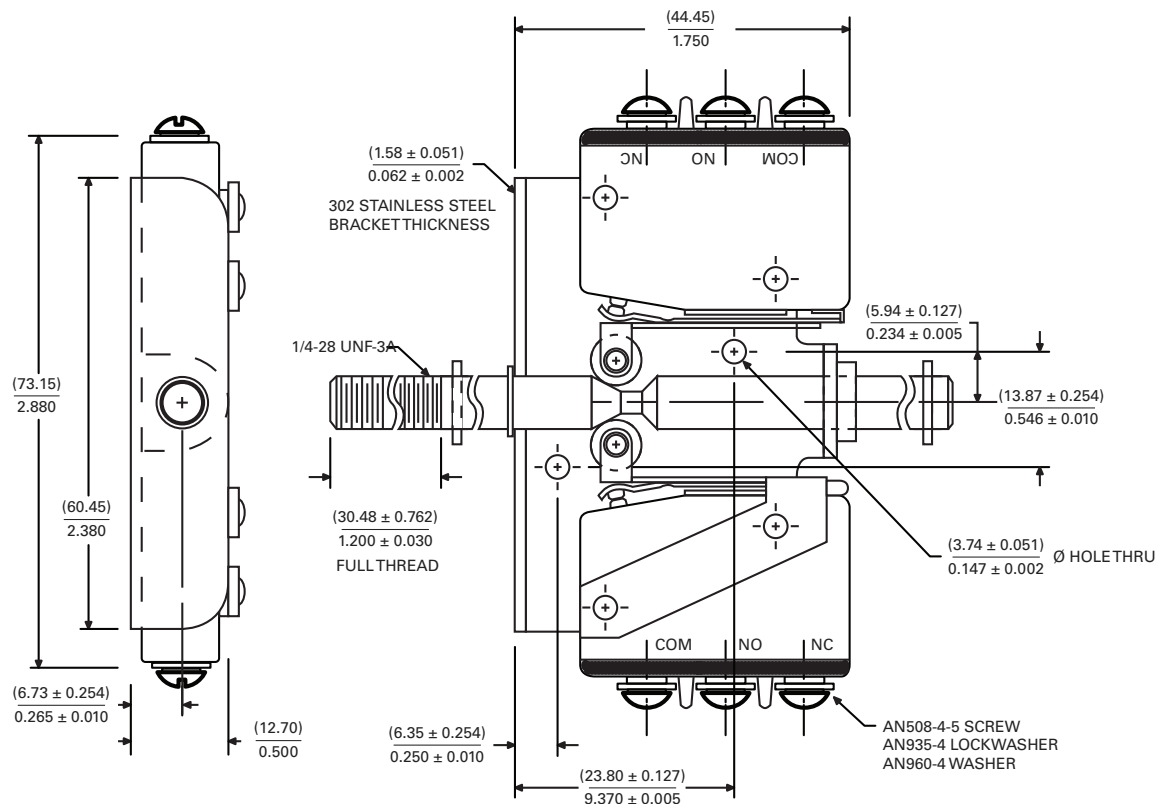
| SPECIFICATIONS | | |
|-------------------------------|--|---------------------|
| Current Capacity | 28 VDC | 115 VAC, 60 - 900Hz |
| Resistance | 10 amps | 10 amps |
| Inductive | 5 amps, L/R .026 | 5 amps PF 0.7 |
| Lamp | 3 amps | 3 amps |
| Dielectric Strength | 1250 volts (RMS) | |
| Full Overtavel Force | 5 lbs max | |
| Life @ Rated Load | 25,000 cycles | |
| Amb. Temperature Range | -65F to +275F (-65C to +150C) | |
| Seal | Hermetic per MIL-S-8805D | |
| Max Leak Rate | 1x10 ⁻⁸ C.C. std. HE/sec | |
| Backfill | Dry nitrogen | |
| Max MV Drop | 20 MV @ 1 amp | |
| Vibration Resistance | Swept sinusoidal vibration per MIL-S-8805 Test Condition A | |
| Shock Resistance | 100 G's, 1/2 sine, 11 ms duration | |



DIMENSIONAL DRAWINGS – 4HVS10-1-10



DIMENSIONAL DRAWINGS – 4HVS20-1-10





KLIXON | ESS Series

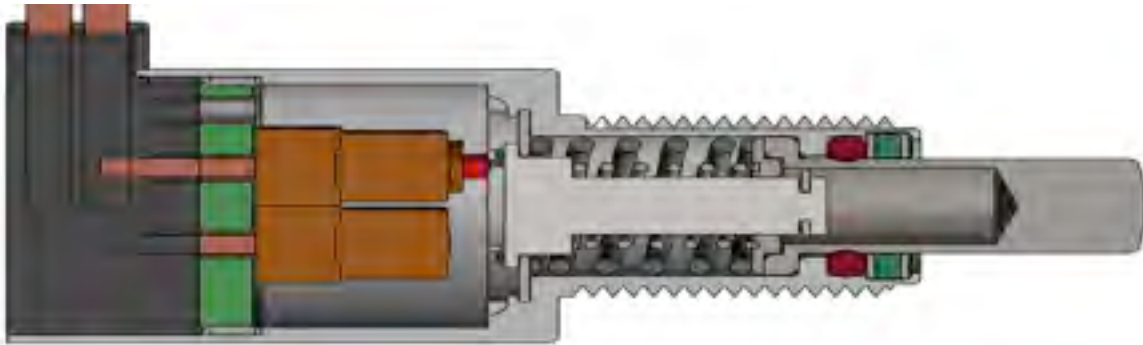
Environmentally Sealed Position Switches

FEATURES

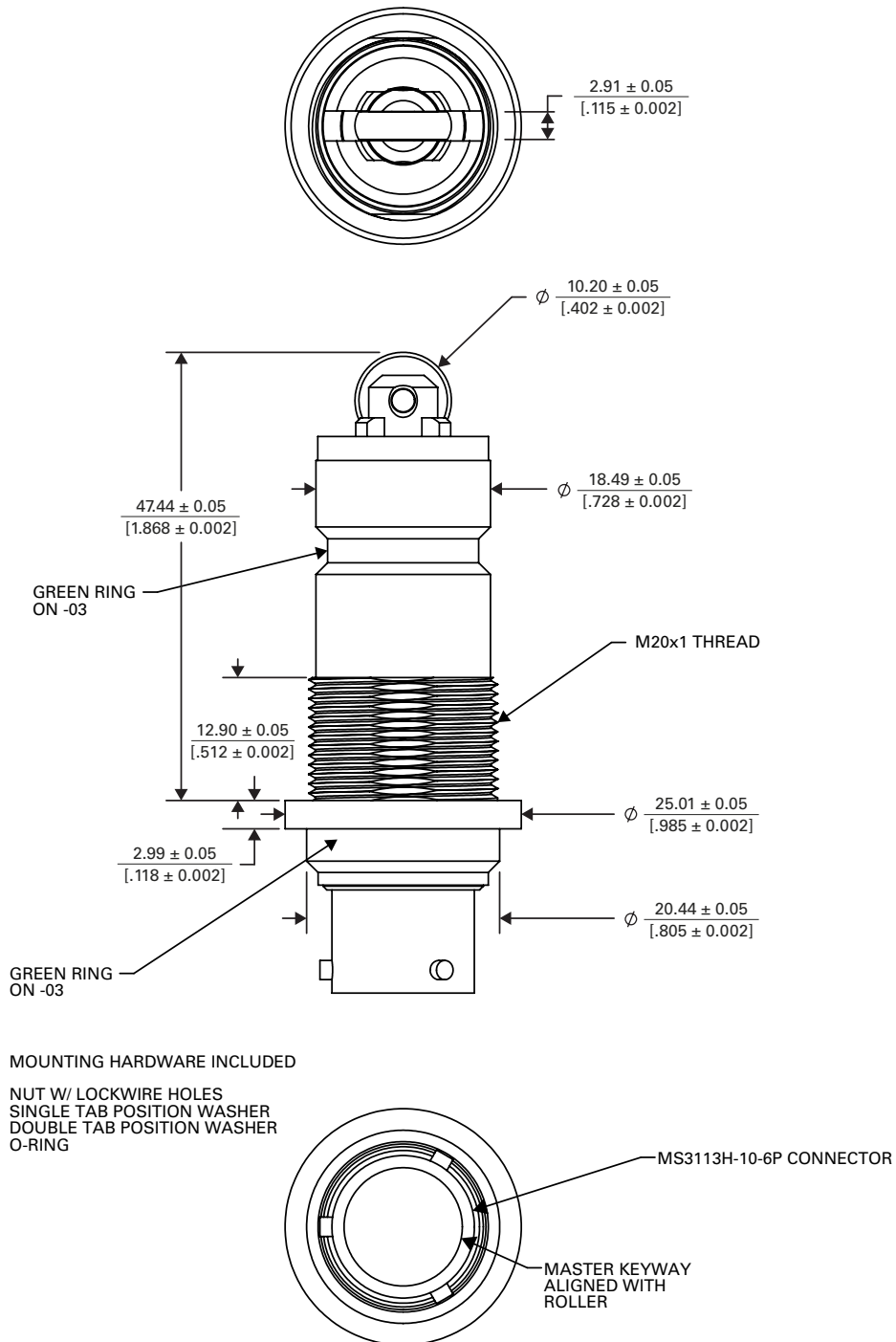
- Meet M8805 level 4 performance requirements
- Single and multi-pole high performance switch packages available
- Various plunger and roller type switches available as standard or custom solutions
- Switching available with AC or DC ratings from .01 amps to 10 amps
- Custom solutions offered with short lead-times

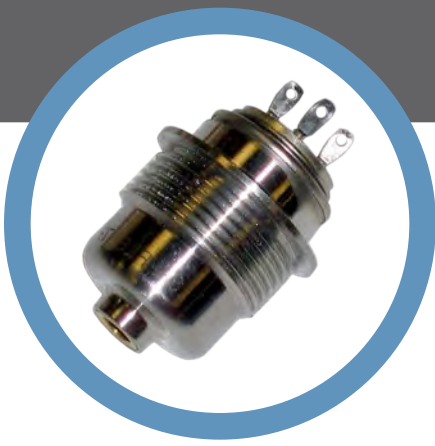
INTRODUCTION

The Klixon® ESS Series of precision limit switches are environmentally sealed to M8805 level 4, and are our most economical precision limit switch solutions. Most package designs include a glass to metal seal and use military qualified basic switches. With this ESS series we continue the practice of offering a wide range of standard package solutions and can quickly offer a customized solution for your specific application needs.



DIMENSIONAL DRAWINGS





KLIXON® | 6PS & 7PS Series

Hermetic Stainless Steel Pressure Switch

FEATURES

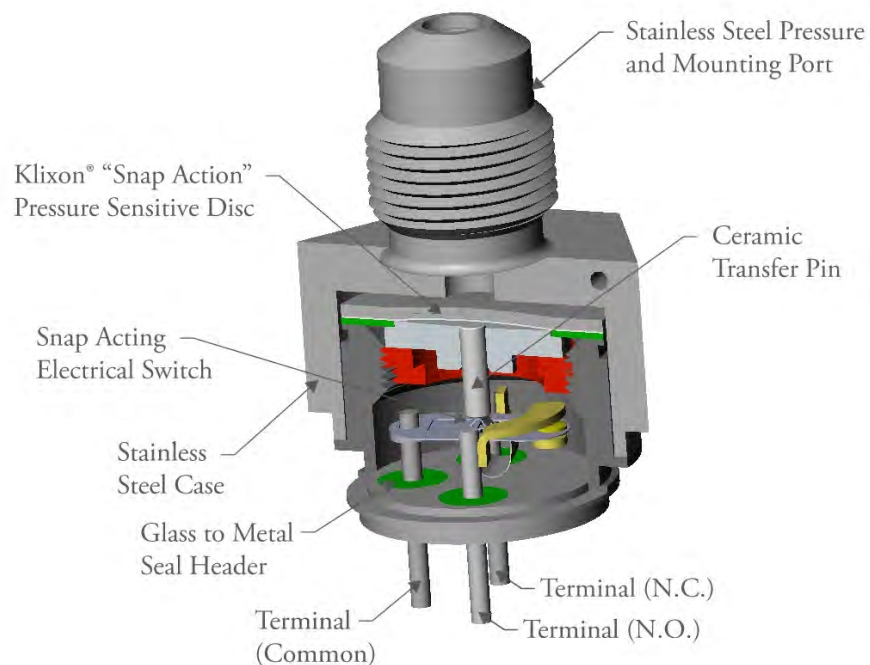
- Hermetically sealed per MIL-E-5400 paragraph 6.3.10
- Covers actuation range of 45 to 700 PSIA
- Maximum corrosion resistance under hostile conditions
 - 300 series stainless steel construction for all environment exposed parts
 - Stainless steel and brass construction for media exposed parts
- High vibration resistance
- 8000 psi minimum burst pressure
- SPDT switch configuration
- Available in a wide range of standard and custom configurations

INTRODUCTION

The Klixon® 6PS and 7PS series precision pressure switches are snap-acting, all-welded devices with hermetically sealed switch contacts. Our pressure switches were developed for applications in aerospace and electronics where high reliability and/or resistance to severe environments is required. To ensure maximum corrosion resistance under hostile conditions, all parts exposed to the pressure media and the environment are made of brass or 300 series stainless steel — no rubber parts are used.

Small and lightweight, 6PS and 7PS Series switches can be mounted by their pressure ports alone, allowing maximum flexibility of design. Full contact force is maintained even during high shock and vibration—regardless of applied pressure—because the positive, snap-action disc works in tandem with snap-action switch contacts.

There are over 1,000 existing 6PS switch package designs. The 6PS is ideal for highly customized package and performance needs. The 7PS is ideal for higher volume standard solution needs.

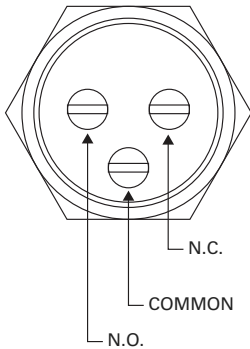


| SPECIFICATIONS | |
|--|--|
| Temperature Rating | -65°F to 275°F (-53.8°C to +135°C) |
| Vibration Resistance | 25 G, 20–2000 cps (no contact chatter in excess of 10 microseconds) |
| Burst Pressure | 8,000 PSI minimum |
| Proof Pressure | 8 times actuating pressure |
| Life @ Rated Current | 50,000 cycles |
| Current Capacity | Resistive : 5amp @ 28 VDC Inductive : 2amp @ 28 VDC Lamp : 1amp @ 28 VDC |
| Dielectric Strength | Terminal to terminal : 1000 vrms Terminal to case : 1000 vrms |
| Weight | Without Leads : 30 grams maximum With Connector : 60 grams maximum |
| Metal Parts Exposed to Pressure & Environment | 300 series stainless steel CA-360-2 (1/2 hard leaded brass) |
| Potting Material | Epoxy resin |

| PRESSURE SPECIFICATIONS | |
|--|--|
| Range of Actuation Pressure Settings | at STP from 45 PSIA to 700 PSIA |
| Range of Deactuation Pressure Settings | Standard : 60% to 85% of actuation pressure Special : 85% to 90% of actuation pressure |
| Range of Tolerances on Actuation & Deactuation Pressure | Standard : up to $\pm 6\%$ of actuation pressure (± 10 PSI minimum) Special : up to $\pm 4\%$ of actuation pressure (± 5 PSI minimum) <i>Choice of deactuation pressure setting and tolerances affects price</i> |

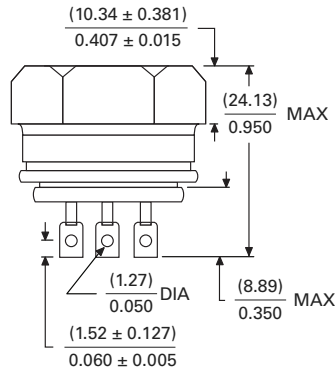
| Actuation Pressure (PSIA) | | | Deactuation Pressure (PSIA) | | | |
|---------------------------|--------------------|-------------------|-----------------------------|--------------------|--------------------|-------------------|
| Pressure | Standard Tolerance | Special Tolerance | Standard 60% to 85% | Special 85% to 90% | Standard Tolerance | Special Tolerance |
| 45 to 134 | ± 10 | ± 5 | 28 to 112 | 40 to 117 | ± 10 | ± 5 |
| 135 to 164 | ± 10 | ± 7 | 83 to 137 | 117 to 144 | ± 10 | ± 7 |
| 165 to 249 | ± 15 | ± 10 | 101 to 208 | 142 to 216 | ± 15 | ± 10 |
| 250 to 369 | ± 20 | ± 15 | 153 to 310 | 217 to 324 | ± 20 | ± 15 |
| 370 to 429 | ± 25 | ± 20 | 225 to 361 | 319 to 378 | ± 25 | ± 20 |
| 430 to 489 | ± 30 | ± 20 | 261 to 412 | 370 to 432 | ± 30 | ± 20 |
| 490 to 549 | ± 35 | ± 25 | 297 to 463 | 421 to 486 | ± 35 | ± 25 |
| 550 to 599 | ± 40 | ± 25 | 333 to 510 | 472 to 540 | ± 40 | ± 25 |
| 600 to 700 | Consult Factory | | | | | |

6PS SERIES - DESIGN TYPE

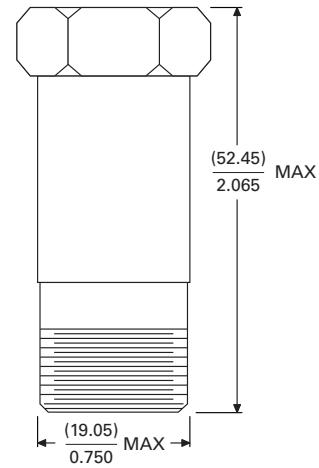


Lockwire holes are $.047 \pm .006$ [1.19 ± .15] diameter. Located $.050 \pm .008$ [1.27 ± .20] from port face of hex

FLATTENED & PIERCED TERMINALS

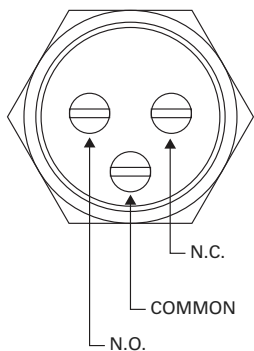


MS33678-10SL-3P (SPDT)
IS33678-10SL-4P (SPST NC/NO)

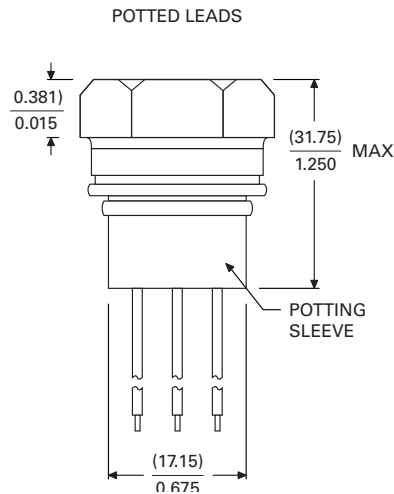
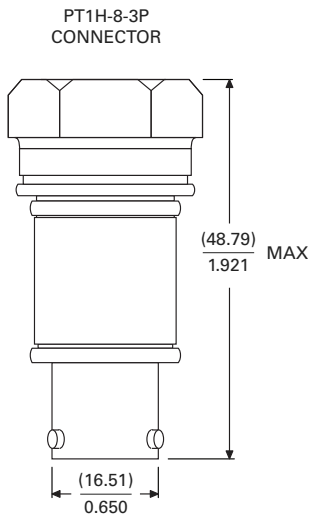


| | | SPDT | SPDT | SPDT | SPDT | SPST | SPST |
|--|--|--|---------------------------------------|--|---------------------------------------|--|---------------------------------------|
| 1/8" OD Tubing MS 33656 -E2 | | 6PS100 without lock-wire holes | 6PS150 with lock-wire holes | 6PS102 without lock-wire holes | 6PS152 with lock-wire holes | 6PS103 without lock-wire holes | 6PS153 with lock-wire holes |
| 3/16" OD Tubing MS 33656 -E3 | | 6PS200 without lock-wire holes | 6PS250 with lock-wire holes | 6PS202 without lock-wire holes | 6PS252 with lock-wire holes | 6PS203 without lock-wire holes | 6PS253 with lock-wire holes |
| 1/4" OD Tubing MS 33656 -E4 | | 6PS300 without lock-wire holes | 6PS350 with lock-wire holes | 6PS302 without lock-wire holes | 6PS352 with lock-wire holes | 6PS303 without lock-wire holes | 6PS353 with lock-wire holes |
| 5/16" OD Tubing MS 33656 -E5 | | 6PS400 without lock-wire holes | 6PS450 with lock-wire holes | 6PS402 without lock-wire holes | 6PS452 with lock-wire holes | 6PS403 without lock-wire holes | 6PS453 with lock-wire holes |
| 3/8" OD Tubing MS 33656 -E6 | | 6PS500 without lock-wire holes | 6PS550 with lock-wire holes | 6PS502 without lock-wire holes | 6PS552 with lock-wire holes | 6PS503 without lock-wire holes | 6PS553 with lock-wire holes |
| 1/8" Pipe Fitting MS 33677 | | 6PS600 without lock-wire holes | 6PS650 with lock-wire holes | 6PS602 without lock-wire holes | 6PS652 with lock-wire holes | 6PS603 without lock-wire holes | 6PS653 with lock-wire holes |
| 1/4" Pipe Fitting MS 33677 | | 6PS700 without lock-wire holes | 6PS750 with lock-wire holes | 6PS702 without lock-wire holes | 6PS752 with lock-wire holes | 6PS703 without lock-wire holes | 6PS753 with lock-wire holes |

6PS SERIES - DESIGN TYPE



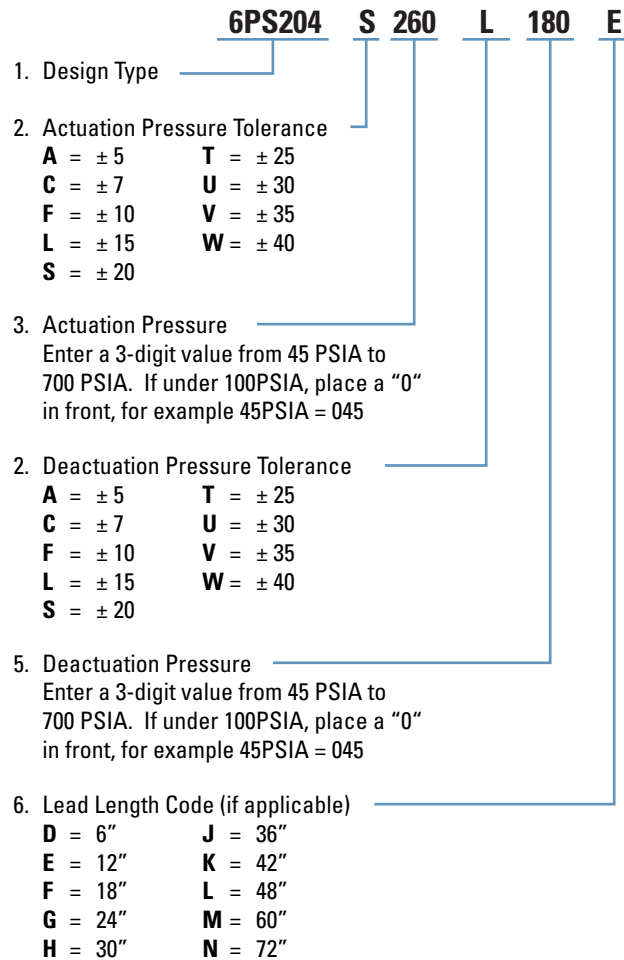
Lockwire holes are $.047 \pm .006$ [$1.19 \pm .15$] diameter. Located $.050 \pm .008$ [$1.27 \pm .20$] from port face of hex



| | | SPST | SPST | SPDT | SPDT | SPST (NC) | SPST (NC) | SPST (NO) | SPST (NO) |
|--|--|---|--|---|--|---|--|---|-----------|
| <p>1/8" OD Tubing MS 33656 -E2</p>  <p>3/16" OD Tubing MS 33656 -E3</p>  <p>1/4" OD Tubing MS 33656 -E4</p>  <p>5/16" OD Tubing MS 33656 -E5</p>  <p>3/8" OD Tubing MS 33656 -E6</p>  <p>1/8" Pipe Fitting MS 33677</p>  <p>1/4" Pipe Fitting MS 33677</p>  | <p>6PS104 without lock-wire holes</p> | <p>6PS154 with lock-wire holes</p> | <p>6PS101 without lock-wire holes</p> | <p>6PS151 with lock-wire holes</p> | <p>6PS105 without lock-wire holes</p> | <p>6PS155 with lock-wire holes</p> | <p>6PS106 without lock-wire holes</p> | <p>6PS156 with lock-wire holes</p> | |
| | <p>6PS204 without lock-wire holes</p> | <p>6PS254 with lock-wire holes</p> | <p>6PS201 without lock-wire holes</p> | <p>6PS251 with lock-wire holes</p> | <p>6PS205 without lock-wire holes</p> | <p>6PS255 with lock-wire holes</p> | <p>6PS206 without lock-wire holes</p> | <p>6PS256 with lock-wire holes</p> | |
| | <p>6PS304 without lock-wire holes</p> | <p>6PS354 with lock-wire holes</p> | <p>6PS301 without lock-wire holes</p> | <p>6PS351 with lock-wire holes</p> | <p>6PS305 without lock-wire holes</p> | <p>6PS355 with lock-wire holes</p> | <p>6PS306 without lock-wire holes</p> | <p>6PS356 with lock-wire holes</p> | |
| | <p>6PS404 without lock-wire holes</p> | <p>6PS454 with lock-wire holes</p> | <p>6PS401 without lock-wire holes</p> | <p>6PS451 with lock-wire holes</p> | <p>6PS405 without lock-wire holes</p> | <p>6PS455 with lock-wire holes</p> | <p>6PS406 without lock-wire holes</p> | <p>6PS456 with lock-wire holes</p> | |
| | <p>6PS504 without lock-wire holes</p> | <p>6PS554 with lock-wire holes</p> | <p>6PS501 without lock-wire holes</p> | <p>6PS551 with lock-wire holes</p> | <p>6PS505 without lock-wire holes</p> | <p>6PS555 with lock-wire holes</p> | <p>6PS506 without lock-wire holes</p> | <p>6PS556 with lock-wire holes</p> | |
| | <p>6PS604 without lock-wire holes</p> | <p>6PS654 with lock-wire holes</p> | <p>6PS601 without lock-wire holes</p> | <p>6PS651 with lock-wire holes</p> | <p>6PS605 without lock-wire holes</p> | <p>6PS655 with lock-wire holes</p> | <p>6PS606 without lock-wire holes</p> | <p>6PS656 with lock-wire holes</p> | |
| | <p>6PS704 without lock-wire holes</p> | <p>6PS754 with lock-wire holes</p> | <p>6PS701 without lock-wire holes</p> | <p>6PS751 with lock-wire holes</p> | <p>6PS705 without lock-wire holes</p> | <p>6PS755 with lock-wire holes</p> | <p>6PS706 without lock-wire holes</p> | <p>6PS756 with lock-wire holes</p> | |

6PS PART NUMBER BUILDER

See pressure table for standard tolerances for the actuation and deactuation pressures. Note, after building the part number, consult the factory for pricing and to confirm pressure specifications are valid.

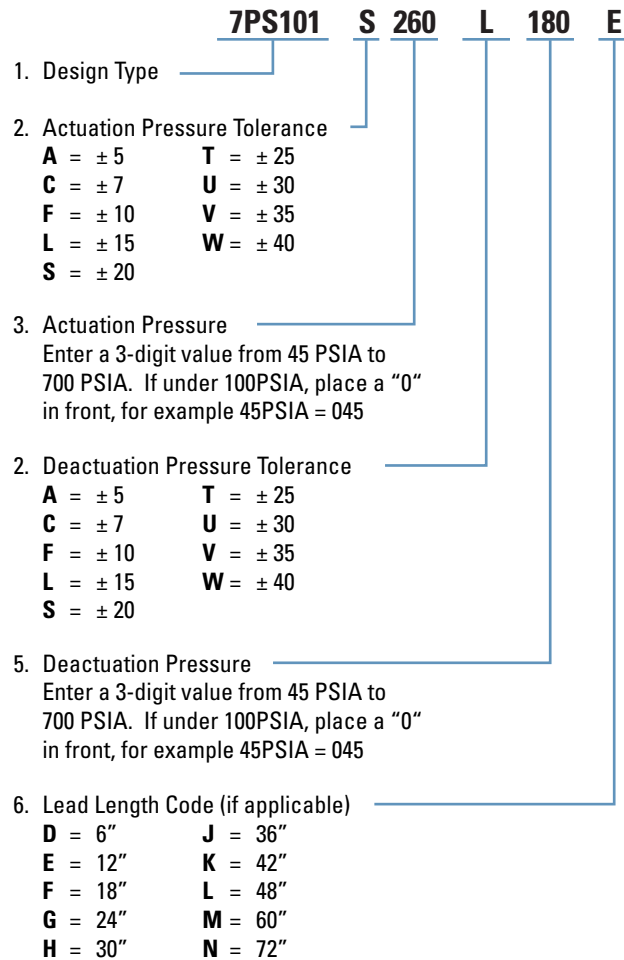


7PS SERIES - DESIGN TYPE

| <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Pressure Port</div> <div style="text-align: center;">Terminals</div> </div> | | <p>FLATTENED & PIERCED TERMINALS</p> | <p>POTTED LEADS</p> | <p>PT1H-8-3P CONNECTOR</p> | | | |
|--|--------|---|--|---|--|---|--|
| | | <p>1/8" OD Tubing MS 33656 -E2 (1" HEX)</p> | <p>3/16" OD Tubing MS 33656 -E3 (1" HEX)</p> | <p>1/4" OD Tubing MS 33656 -E4 (1" HEX)</p> | <p>5/16" OD Tubing MS 33656 -E5 (1" HEX)</p> | <p>3/8" OD Tubing MS 33656 -E6 (1" HEX)</p> | <p>1/8" Pipe Fitting MS 33677 (1" HEX)</p> |
| | 7PS100 | 7PS101 | 7PS102 | | | | |
| | 7PS200 | 7PS201 | 7PS202 | | | | |
| | 7PS300 | 7PS301 | 7PS302 | | | | |
| | 7PS400 | 7PS401 | 7PS402 | | | | |
| | 7PS500 | 7PS501 | 7PS502 | | | | |
| | 7PS600 | 7PS601 | 7PS602 | | | | |
| | 7PS700 | 7PS701 | 7PS702 | | | | |
| | 7PS800 | 7PS801 | 7PS802 | | | | |

7PS PART NUMBER BUILDER

See pressure table for standard tolerances for the actuation and deactuation pressures. Note, after building the part number, consult the factory for pricing and to confirm pressure specifications are valid.





KLIXON® | 2SE Series

Solid-State Air Flow Sensors

FEATURES

- Solid-state design for improved reliability
- SPST or SPDT configuration
- Normally open or normally closed
- Commercial or military grades available
- Low power dissipation (approximately 3 watts)
- Excellent shock and vibration resistance

INTRODUCTION

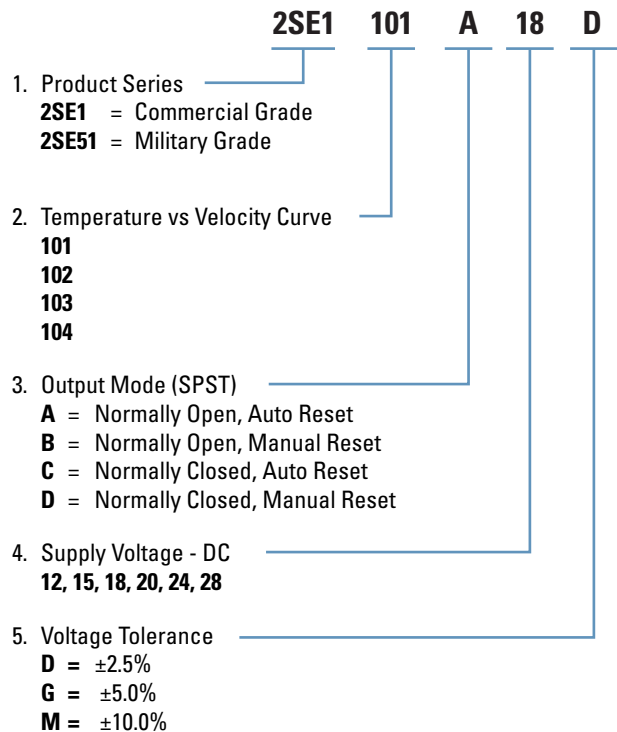
Sensata is a world leader in the design and manufacture of air flow sensors. We build devices that are high-quality, dependable, and reasonably priced. We can customize Klixon® air flow sensors to meet your engineering needs. Our solid-state vane switch is ideal for recognizing loss or reduction of airflow in electronic equipment. Typically used in power supplies, data processing equipment, and large electronic cabinets.

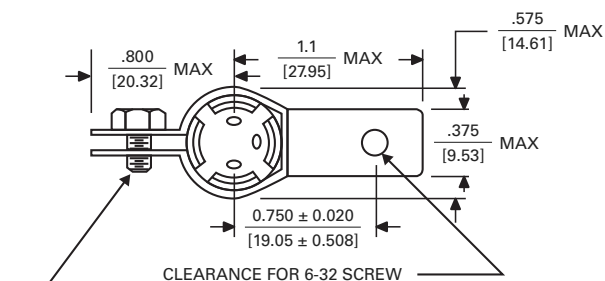
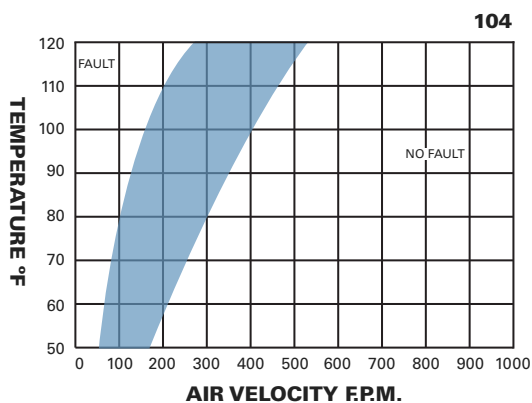
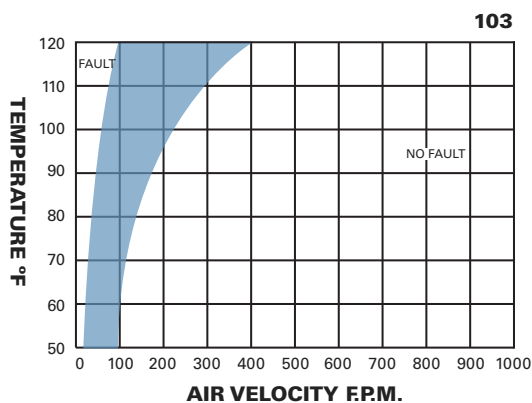
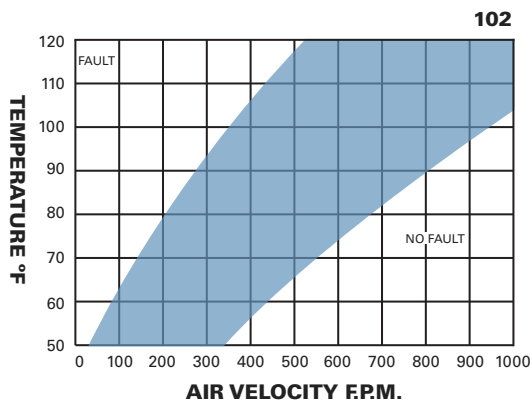
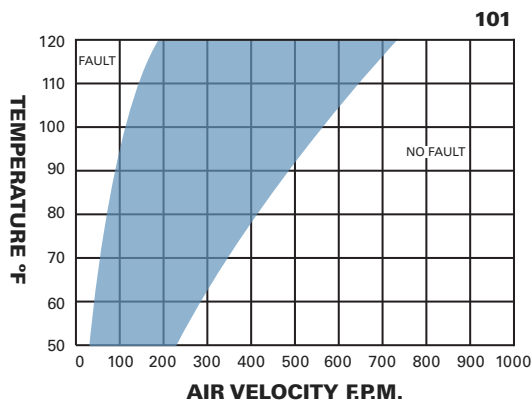
Unlike its electromechanical vane switch predecessor, our solid-state switch continues to provide reliable switching even in the dirtiest of environments. Klixon® air flow sensors are designed to recognize loss or reduction of airflow in:

- Power supplies
- Data processing units
- Commercial electronic equipment
- Military electronic equipment

| SPECIFICATIONS | |
|-------------------------------|---------------------|
| Supply Voltage | 30 VDC max |
| Switching Capacity | up to 400 milliamps |
| Operating Temperature | +10°C to +50°C |
| Amb. Temperature Range | up to 150°C |
| Life Cycles | 100,000 |
| Average Weight | 20 grams |

STANDARD PART NUMBER BUILDER





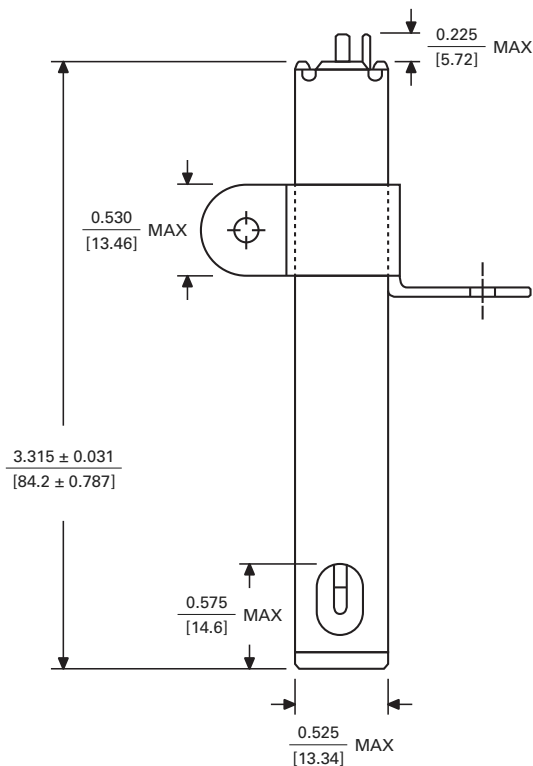
COMMERCIAL GRADE:
SHEET METAL SCREW
MILITARY GRADE:
MACHINE SCREW, WASHER, NUT

TERMINALS ARE GOLD PLATED BRASS

$\frac{0.092 \pm 0.005}{[2.34 \pm 0.127]}$ WIDE X $\frac{0.031 \pm 0.003}{[0.787 \pm 0.08]}$ THICK

WIRE LEADS AVAILABLE INTERNALLY WIRED, 22 AWG

MATING FEMALE QUICK-CONNECT
TERMINALS ARE AVAILABLE, ORDER
P/M 17874-1 FOR KIT OF 3.
(ARK-LES P/N 3700HZC)



SENSATA M8805 MIL SPEC SWITCH QUALIFICATIONS

| Military Specification | Sensata Part Number | Seal | Poles | Configuration | Wire Leads | Threaded Mount |
|------------------------|---------------------|----------|-------|--------------------------|-------------------|-------------------------|
| M8805/68-022 | 10AT117-01 | Hermetic | SPDT | Flat Plunger | No Wires | None |
| M8805/68-023 | 10AT17-01 | Hermetic | SPDT | Flat Plunger | No Wires | 7/16-32NS-2A THD |
| M8805/68-024 | 10AT17-02-10 | Hermetic | SPDT | Flat Plunger | Parallel - 72" | 7/16-32NS-2A THD |
| M8805/68-025 | 10AT17-03-10 | Hermetic | SPDT | Flat Plunger | Right Angle - 72" | 7/16-32NS-2A THD |
| M8805/68-026 | 10AT15-01 | Hermetic | SPDT | Flat Plunger | No Wires | Bracket Mount |
| M8805/68-027 | 10AT15-02-10 | Hermetic | SPDT | Flat Plunger | Parallel - 72" | Bracket Mount |
| M8805/68-028 | 10AT15-03-10 | Hermetic | SPDT | Flat Plunger | Right Angle - 72" | Bracket Mount |
| M8805/70-033 | 10AT372-32-10 | Hermetic | 2PDT | Sealed Flat Plunger | Parallel - 72" | 15/32-32NS-2A THD |
| M8805/70-034 | 10AT373-32-10 | Hermetic | 2PDT | Sealed Roller Plunger | Parallel - 72" | 15/32-32NS-2A THD |
| M8805/70-035 | 10AT372-33-10 | Hermetic | 2PDT | Sealed Flat Plunger | Right Angle - 72" | 15/32-32NS-2A THD |
| M8805/70-036 | 10AT373-33-10 | Hermetic | 2PDT | Sealed Roller Plunger | Right Angle - 72" | 15/32-32NS-2A THD |
| M8805/70-037 | 10AT375-102-10 | Hermetic | 4PDT | Sealed Flat Plunger | Parallel - 72" | 15/32-32NS-2A THD |
| M8805/70-038 | 10AT374-102-10 | Hermetic | 4PDT | Sealed Roller Plunger | Parallel - 72" | 15/32-32NS-2A THD |
| M8805/70-039 | 10AT375-103-10 | Hermetic | 4PDT | Sealed Flat Plunger | Right Angle - 72" | 15/32-32NS-2A THD |
| M8805/70-040 | 10AT374-103-10 | Hermetic | 4PDT | Sealed Roller Plunger | Right Angle - 72" | 15/32-32NS-2A THD |
| M8805/72-033 | 10AT363-02-10 | Hermetic | SPDT | Flat Plunger | Parallel - 72" | 5/16-24UNF-2A THD |
| M8805/72-034 | 10AT361-02-10 | Hermetic | SPDT | Flat Plunger | Parallel - 72" | 5/16-24UNF-2A THD Short |
| M8805/72-035 | 10AT363-03-10 | Hermetic | SPDT | Flat Plunger | Right Angle - 72" | 5/16-24UNF-2A THD |
| M8805/72-036 | 10AT361-03-10 | Hermetic | SPDT | Flat Plunger | Right Angle - 72" | 5/16-24UNF-2A THD Short |
| M8805/72-037 | 10AT364-02-10 | Hermetic | SPDT | Spherical Plunger | Parallel - 72" | 5/16-24UNF-2A THD |
| M8805/72-038 | 10AT362-02-10 | Hermetic | SPDT | Spherical Plunger | Parallel - 72" | 5/16-24UNF-2A THD Short |
| M8805/72-039 | 10AT364-03-10 | Hermetic | SPDT | Spherical Plunger | Right Angle - 72" | 5/16-24UNF-2A THD |
| M8805/72-040 | 10AT362-03-10 | Hermetic | SPDT | Spherical Plunger | Right Angle - 72" | 5/16-24UNF-2A THD Short |
| M8805/73-013 | 10AT7-02-10 | Hermetic | SPDT | Sealed Flat Plunger | Parallel - 72" | 3/8-32 NEF-2A THD |
| M8805/73-014 | 10AT7-03-10 | Hermetic | SPDT | Sealed Flat Plunger | Right Angle - 72" | 3/8-32 NEF-2A THD |
| M8805/73-015 | 10AT76-02-10 | Hermetic | SPDT | Sealed Spherical Plunger | Parallel - 72" | 3/8-32 NEF-2A THD |
| M8805/73-016 | 10AT76-03-10 | Hermetic | SPDT | Sealed Spherical Plunger | Right Angle - 72" | 3/8-32 NEF-2A THD |
| M8805/74-035 | 10AT366-02-10 | Hermetic | SPDT | Flat Plunger | Parallel - 72" | 15/32-32NS-2A THD |
| M8805/74-036 | 10AT368-02-10 | Hermetic | SPDT | Roller Plunger | Parallel - 72" | 15/32-32NS-2A THD |
| M8805/74-037 | 10AT366-03-10 | Hermetic | SPDT | Flat Plunger | Right Angle - 72" | 15/32-32NS-2A THD |
| M8805/74-038 | 10AT368-03-10 | Hermetic | SPDT | Roller Plunger | Right Angle - 72" | 15/32-32NS-2A THD |
| M8805/74-039 | 10AT369-02-10 | Hermetic | SPDT | Sealed Flat Plunger | Parallel - 72" | 15/32-32NS-2A THD |
| M8805/74-040 | 10AT371-02-10 | Hermetic | SPDT | Sealed Roller Plunger | Parallel - 72" | 15/32-32NS-2A THD |
| M8805/74-041 | 10AT369-03-10 | Hermetic | SPDT | Sealed Flat Plunger | Right Angle - 72" | 15/32-32NS-2A THD |
| M8805/74-042 | 10AT371-03-10 | Hermetic | SPDT | Sealed Roller Plunger | Right Angle - 72" | 15/32-32NS-2A THD |
| M8805/74-043 | 10AT367-02-10 | Hermetic | SPDT | Spherical Plunger | Parallel - 72" | 15/32-32NS-2A THD |
| M8805/74-044 | 10AT367-03-10 | Hermetic | SPDT | Spherical Plunger | Right Angle - 72" | 15/32-32NS-2A THD |
| M8805/74-045 | 10AT370-02-10 | Hermetic | SPDT | Sealed Spherical Plunger | Parallel - 72" | 15/32-32NS-2A THD |
| M8805/74-046 | 10AT370-03-10 | Hermetic | SPDT | Sealed Spherical Plunger | Right Angle - 72" | 15/32-32NS-2A THD |

"CLOSEST MATCH" CROSS REFERENCE

| Hermetic Mil Spec Solutions | | Sensata's Closest Hermetic Solutions | | General Description | | |
|-----------------------------|-------|--------------------------------------|------------------------|---------------------|------------|----------------|
| Military Specification | M8805 | PN | Military Specification | Configuration | Wire Leads | Threaded Mount |
| M8805/80-01 | /80 | 10AT506-33-10 | | Plunger | 2PDT | 5/8-24 |
| M8805/80-03 | /80 | 10AT506-33-10 | | Plunger | 2PDT | 5/8-24 |
| M8805/80-04 | /80 | 10AT507-103-10 | | Plunger | 4PDT | 5/8-24 |
| M8805/80-05 | /80 | 10AT358-33-10 | | Plunger | 2PDT | 15/32-32 |
| M8805/80-06 | /80 | 10AT510-103-10 | | Plunger | 4PDT | 15/32-32 |
| M8805/80-07 | /80 | 10AT373-33-10 | M8805/70-036 | Roller | 2PDT | 15/32-32 |
| M8805/80-08 | /80 | 10AT374-103-10 | M8805/70-040 | Roller | 4PDT | 15/32-32 |
| MS24594-1 | /41 | 3AT152-32-10 | | Plunger | 2PDT | 3/4-20 |
| MS27216-1 | /8 | 10AT511-01 | | Leaf | SPDT | NA |
| MS27216-2 | /8 | 10AT511-02-2 | | Leaf | SPDT | NA |
| MS27216-3 | /8 | 10AT511-03-2 | | Leaf | SPDT | NA |
| MS27216-4 | /8 | 10AT511-02-9 | | Leaf | SPDT | NA |
| MS27216-5 | /8 | 10AT511-01 | | Leaf | SPDT | NA |
| MS27216-6 | /8 | 10AT511-01 | | Leaf | SPDT | NA |
| M8805/82-002 | /82 | 10AT509-01 | | Leaf | SPDT | NA |
| MS21321-1 | /39 | 10AT506-33-10 | | Plunger | 2PDT | 5/8-24 |
| MS21321-2 | /39 | 10AT507-103-10 | | Plunger | 4PDT | 5/8-24 |
| MS24331-1 | /40 | 10AT506-33-10 | | Plunger | 2PDT | 5/8-24 |
| MS27240-1 | /43 | 10AT358-33-10 | | Plunger | 2PDT | 15/32 -32 |
| MS27240-2 | /43 | 10AT510-103-10 | | Plunger | 4PDT | 15/32 -32 |
| MS27240-3 | /43 | 10AT373-33-10 | M8805/70-036 | Roller | 2PDT | 15/32 -32 |
| MS27240-4 | /43 | 10AT374-103-10 | M8805/70-040 | Roller | 4PDT | 15/32 -32 |
| MS27240-5 | /43 | 10AT358-33-10 | | Plunger | 2PDT | 15/32 -32 |
| MS27240-6 | /43 | 10AT510-103-10 | | Plunger | 4PDT | 15/32 -32 |
| MS27240-7 | /43 | 10AT373-33-10 | M8805/70-036 | Roller | 2PDT | 15/32 -32 |
| MS27240-8 | /43 | 10AT374-103-10 | M8805/70-040 | Roller | 4PDT | 15/32 -32 |

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Sensata
Technologies

The World Depends on Sensors and Controls

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