



SPECIFICATIONS

CONTACT RATING: Dependent upon contact material See page 11.

MECHANICAL LIFE: 40,000 make-and-break cycles.

CONTACT RESISTANCE: 10mΩ max. initial @ 2-4VDC
100mA for both silver and gold plated contacts.

INSULATION RESISTANCE: 1,000 MΩ min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -40°C to 85°C.

MATERIALS

CASE: Diallyl phthalate (DAP) (UL94v-0).

ACTUATOR: Brass, chrome plated.

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass, tin plated.

CONTACT / TERMINALS: Copper alloy, Silver or gold plated.

(See Page 11)



HOW TO ORDER

| MODEL NO. | ACTUATOR | BUSHING | TERMINATIONS | TERMINAL PLATING | SEAL | RoHS SOLDERING |
|-----------------------|------------------------------|---------|--|--------------------|---------------|----------------|
| Model NO. | Actuator | | Terminations | Terminal plating | Seal | RoHS soldering |
| 1MS1 SP ON-NONE-ON | T1 10.41 high | | M1 Solder lug | Q Silver | E EPOXY (std) | |
| 1MS2 SP ON-NONE-(ON) | T2 5.08 high | | M2 PC thru-hole | R Gold | N NO EPOXY | |
| 1MS3 SP ON-OFF-ON | T3 13.97 high | | M3 Quick connect | C Gold over silver | | |
| 1MS4 SP (ON)-OFF-(ON) | T4 16.26 high | | M51 18.70 high, wire wrap | | | |
| 1MS5 SP ON-OFF-(ON) | T5 21.34 high | | M52 24.20 high, wire wrap | | | |
| 1MD1 DP ON-NONE-ON | T6 Flatted,anti-rotation | | M53 10.55 high, wire wrap | | | |
| 1MD2 DP ON-NONE-(ON) | T61 Flatted,anti-rotation | | M54 26.97 high, wire wrap | | | |
| 1MD3 DP ON-OFF-ON | T62 Lever handle with cap | | M6 Right angle, PC thru-hole | | | |
| 1MD4 DP (ON)-OFF-(ON) | T63 Flatted,anti-rotation | | M6N Right angle, Snap-in, PC thru-hole | | | |
| 1MD5 DP ON-OFF-(ON) | T66 13.49 high | | M7 Vertical right angle, PC thru-hole | | | |
| 1MD6 DP ON-ON-ON | T7 12.37 high, 15/32 bushing | | VS2 11.68 high, V-bracket | | | |
| 1MD7 DP (ON)-ON-(ON) | T8 17.56 high, 15/32 bushing | | V2N 11.68 high, Snap-in. V-bracket | | | |
| 1MD8 DP ON-ON-(ON) | T88 17.5 high, 15/32 bushing | | VS3 16.00 high, V-bracket | | | |
| 1M31 3P ON-NONE-ON | T9 Plastic, 21.3 high | | VS4 11.68 high, V-bracket | | | |
| 1M32 3P ON-NONE-(ON) | TL1 Locking lever 16.00 high | | VS5 16.00 high, V-bracket | | | |
| 1M33 3P ON-OFF-ON | TL2 Locking lever 16.26 high | | Bushing | | | |
| 1M34 3P (ON)-OFF-(ON) | TL3 Locking lever 17.28 high | | B1 8.89 high, keyway (thd std) | | | |
| 1M35 3P ON-OFF-(ON) | | | B2 8.89 high, keyway (non-thd) | | | |
| 1M41 4P ON-NONE-ON | | | B3 7.10 high, keyway (thd) | | | |
| 1M42 4P ON-NONE-(ON) | | | B4 7.10 high, keyway (non-thd) | | | |
| 1M43 4P ON-OFF-ON | | | B5 7.52 high, flat (torque) | | | |
| 1M44 4P (ON)-OFF-(ON) | | | B6 8.00 high, keyway (torque) | | | |
| 1M45 4P ON-OFF-(ON) | | | B7 8.89 high, flat (thd std) | | | |
| 1M46 4P ON-ON-ON | | | B8 8.89 high, keyway (metric thd) | | | |
| 1M47 4P (ON)-ON-(ON) | | | B9 7.52 high, flat (splash proof) | | | |
| 1M48 4P ON-ON-(ON) | | | B11 7.55 high, keyway (thd std) | | | |
| | | | B12 7.55 high, keyway (non-thd) | | | |
| | | | B13 11.38 high, keyway (15/32 bushing) | | | |
| | | | B14 11.90 high, flat (splash proof) | | | |
| | | | B15 7.55 high, flat (thd std) | | | |
| | | | B16 7.55 high, flat (non-thd) | | | |
| | | | B17 3.50 high, keyway | | | |
| | | | B18 11.38 high, keyway (15/32 bushing) | | | |
| | | | B20 11.38 high, keyway (15/32 bushing) | | | |
| | | | B25 8.00 high, keyway, locking lever (thd) | | | |
| | | | B26 8.00 high, keyway, locking lever (non-thd) | | | |
| | | | B52 11.70 high, flat (15/32 bushing) | | | |

RoHS soldering
S RoHS & Lead Free

1M Series

Miniature Toggle Switches

SWITCH FUNCTION

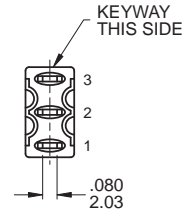
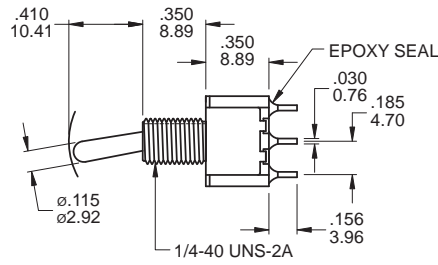
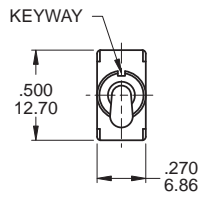
| NO. POLES | UL/CSA MODEL NO. | MODEL NO. | SWITCH FUNCTION | | | CONNECTED TERMINALS / SCHEMATIC | | |
|-----------|------------------|-----------|-----------------|-------|-------|---------------------------------|-------------------|-------------------|
| | | | POS.1 | POS.2 | POS.3 | POS.1 | POS.2 | POS.3 |
| | | | | | | | | |
| SP | Q1111 | 1MS1 | ON | NONE | ON | | N/A | |
| | Q1112 | 1MS2 | ON | NONE | (ON) | 2-3 | | 2-1 |
| | Q1113 | 1MS3 | ON | OFF | ON | | | |
| | Q1114 | 1MS4 | (ON) | OFF | (ON) | | OPEN | |
| | Q1115 | 1MS5 | ON | OFF | (ON) | | | |
| DP | Q1121 | 1MD1 | ON | NONE | ON | | N/A | |
| | Q1122 | 1MD2 | ON | NONE | (ON) | 2-3,5-6 | | 2-1,5-4 |
| | Q1123 | 1MD3 | ON | OFF | ON | | | |
| | Q1124 | 1MD4 | (ON) | OFF | (ON) | | OPEN | |
| | Q1125 | 1MD5 | ON | OFF | (ON) | | | |
| | Q1126 | 1MD6 | ON | ON | ON | | | |
| | ▲ Q1127 | 1MD7 | (ON) | ON | (ON) | 2-3,5-6 | 2-3,5-4 | 2-1,5-4 |
| | ▲ Q1128 | 1MD8 | ON | ON | (ON) | | | |
| 3P | Q1131 | 1M31 | ON | NONE | ON | | N/A | |
| | Q1132 | 1M32 | ON | NONE | (ON) | 2-3,5-6,8-9 | | 2-1,5-4,8-7 |
| | Q1133 | 1M33 | ON | OFF | ON | | | |
| | Q1134 | 1M34 | (ON) | OFF | (ON) | | OPEN | |
| | Q1135 | 1M35 | ON | OFF | (ON) | | | |
| 4P | Q1141 | 1M41 | ON | NONE | ON | | N/A | |
| | Q1142 | 1M42 | ON | NONE | (ON) | 2-3,5-6,8-9,11-12 | | 2-1,5-4,8-7,11-10 |
| | Q1143 | 1M43 | ON | OFF | ON | | | |
| | Q1144 | 1M44 | (ON) | OFF | (ON) | | OPEN | |
| | Q1145 | 1M45 | ON | OFF | (ON) | | | |
| | Q1146 | 1M46 | ON | ON | ON | | | |
| | ▲ Q1147 | 1M47 | (ON) | ON | (ON) | 2-3,5-6,8-9,11-12 | 2-3,5-4,8-9,11-10 | 2-1,5-4,8-7,11-10 |
| | ▲ Q1148 | 1M48 | ON | ON | (ON) | | | |

() = MOMENTARY

▲ Please check the availability in advance before order

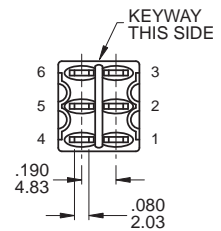
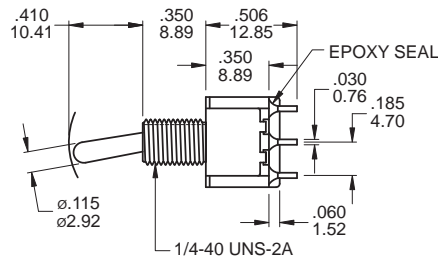
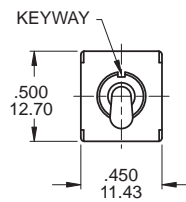
1M Toggle Switches

POLE OPTIONS



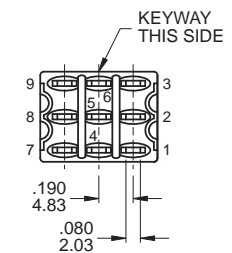
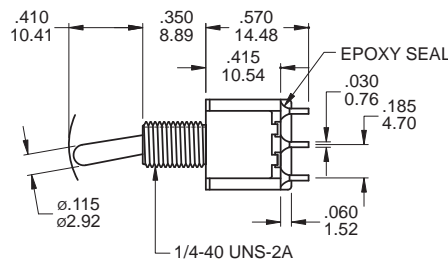
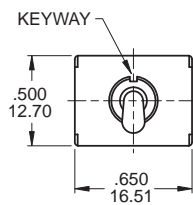
SPDT

Part No. Shown : 1MS1T1B1M1QES



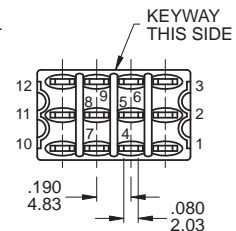
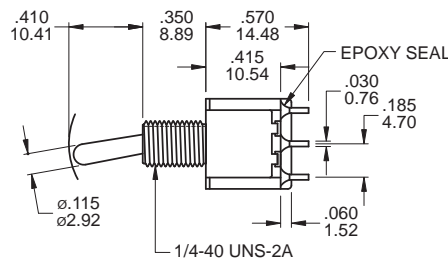
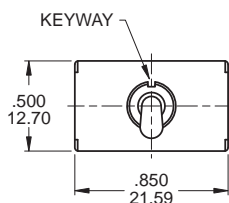
DPDT

Part No. Shown : 1MD1T1B1M1QES



3PDT

Part No. Shown : 1M31T1B1M1QES



4PDT

Part No. Shown : 1M41T1B1M1QES



1M
Toggle Switches

1M Series

Miniature Toggle Switches

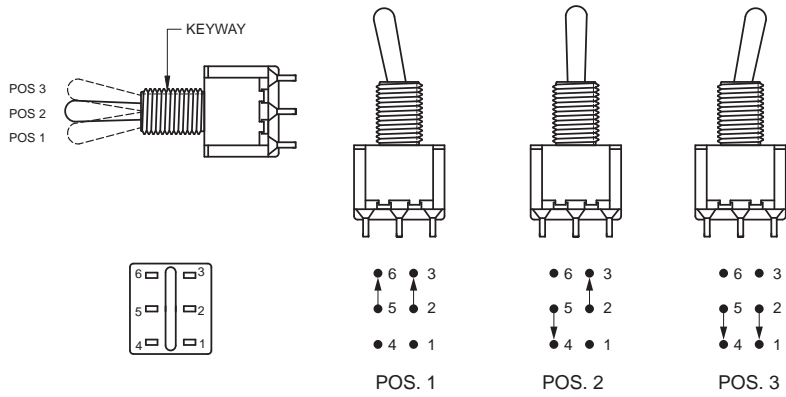
3-WAY SWITCH

3-Way Wiring Diagram Schematics

1M Toggle Switches

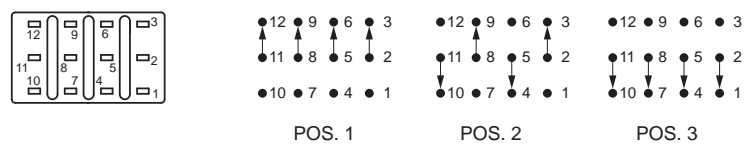
SINGLE POLE, 3 POSITION

| Model No. | POS 1 | POS 2 | POS 3 |
|-------------|---------|---------|---------|
| 1MD6 | ON | ON | ON |
| Term. Comm. | 2-3,5-6 | 2-3,5-4 | 2-1,5-4 |



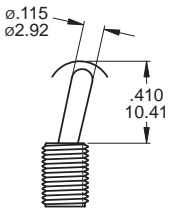
DOUBLE POLE, 3 POSITION

| Model No. | POS 1 | POS 2 | POS 3 |
|-------------|----------------------|----------------------|----------------------|
| 1M46 | ON | ON | ON |
| Term. Comm. | 2-3,5-6 8-9,11-12 | 2-3,5-4 8-9,11-10 | 2-1,5-4 8-7,11-10 |

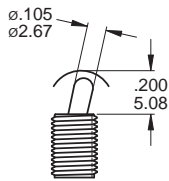


ACTUATOR OPTIONS

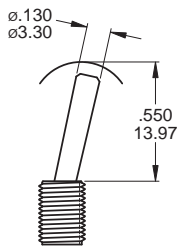
T1 STD



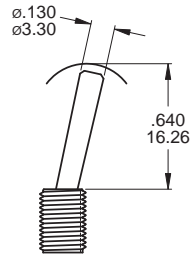
T2



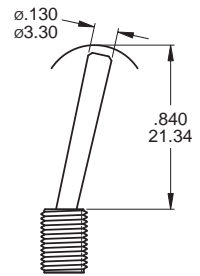
T3



T4



T5



NOTE : T1 ~ T5 Actuator shown with standard B1 Bushing ;

Add .070 (1.78) for B3 Bushing ;

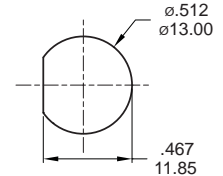
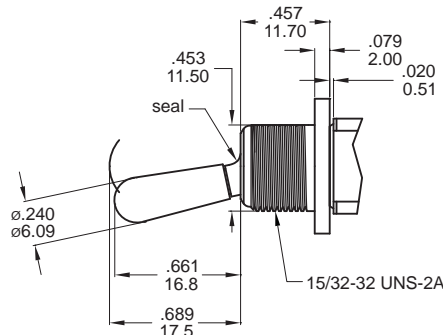
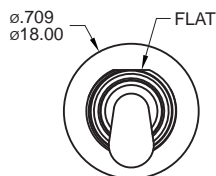
Subtract .020 (0.51) for B6 Bushing ;

Std for M1 , M2 Terminal sub .016 (0.40) for M6 , M7 , VSX (Exclude B1/B2 bushing)

T88B52

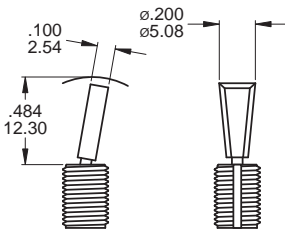
SPLASH PROOF

Std SPDT for M1.M2 Terminal

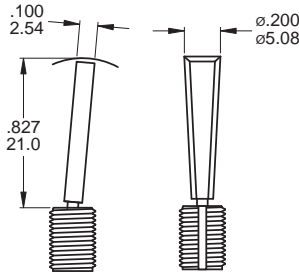


PANEL MOUNTING
Without locking ring (Flat)

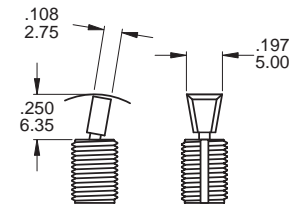
T6 FLATTED WITH ANTIROTATION



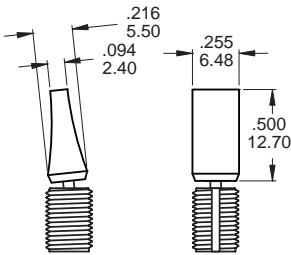
T61



T63



T62



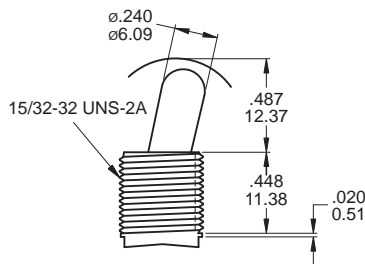
Plastic No.Color :

| ITEM NO | COLOR |
|---------|-------------|
| 1 | White |
| 2 | Black (Std) |
| 3 | Red |
| 4 | Orange |
| 5 | Yellow |
| 6 | Green |
| 7 | Blue |
| 8 | Brown |
| 9 | Gray |

NOTE: T6,T61,T62 ,T63 use with B11, B12, B15, B16 bushing only.

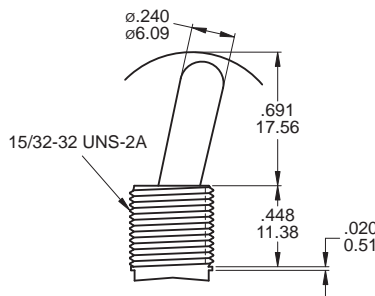
* Besides standard color, other colors need to check stocks available.

T7



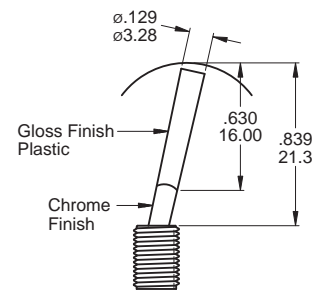
Use with B13 bushing
Use with B18,B20 the lever is antirotation and the size of lever is 13.00mm

T8



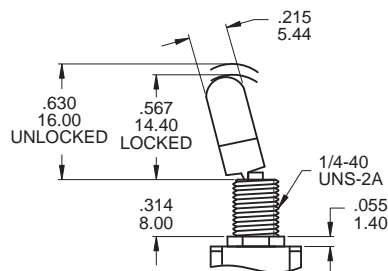
Use with B13 bushing
Use with B18,B20 the lever is antirotation and the size of lever is 18.00mm

T9

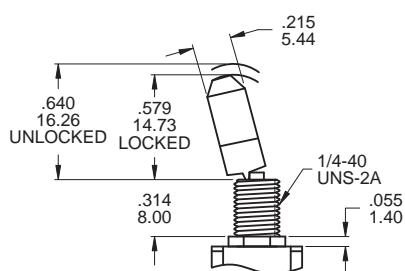


B1 / B2 bushing std with black(T92) and red(T93) color only(std.)

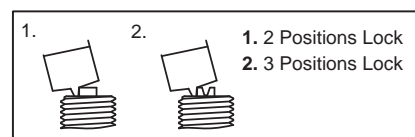
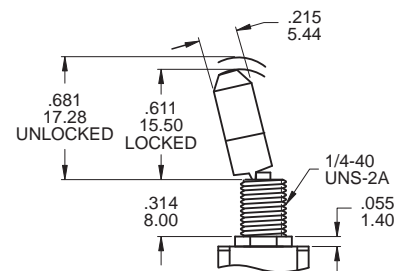
TL1B25 THD STD
B26 NON-THD



TL2B25 THD STD
B26 NON-THD



TL3B25 THD STD
B26 NON-THD



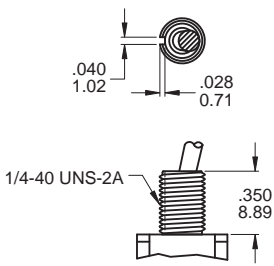
1M Series

Miniature Toggle Switches

BUSHING OPTIONS

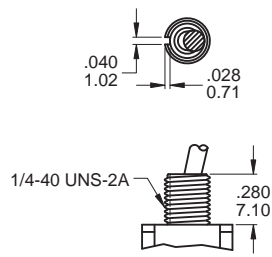
1M
Toggle Switches

B1 THD STD
B2 NON-THD



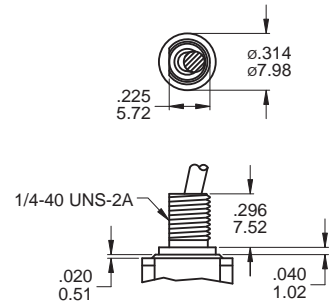
Subtract .016 (0.40) for M6, M7 and VS2-5 termination options.

B3 THD
B4 NON-THD

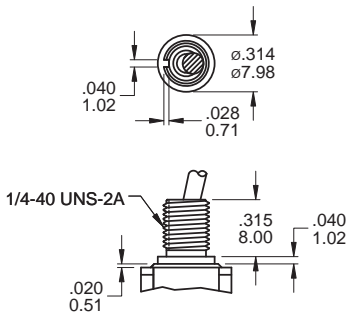


B4 is standard for M6, M7 and VS2-5 termination options.

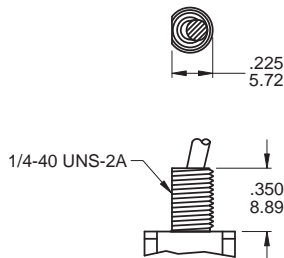
B5 HIGH TORQUE



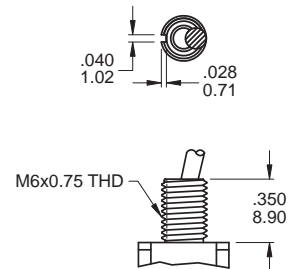
B6 HIGH TORQUE



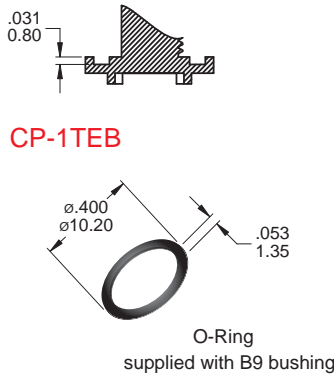
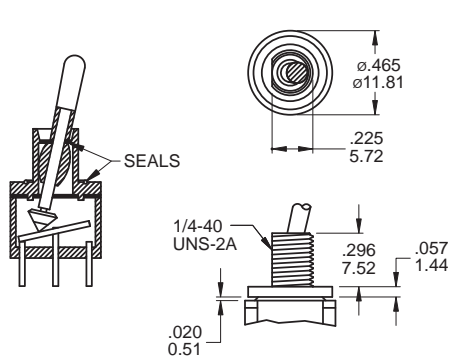
B7 THD STD



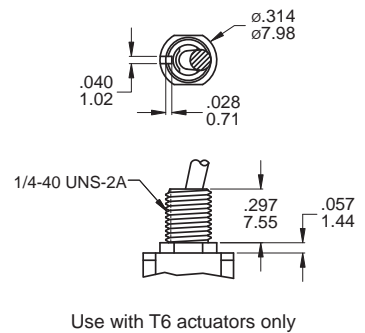
B8 METRIC THD



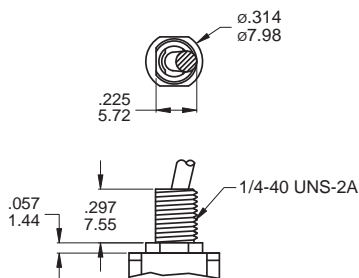
B9 SPLASH PROOF



B11 THD STD
B12 NON-THD

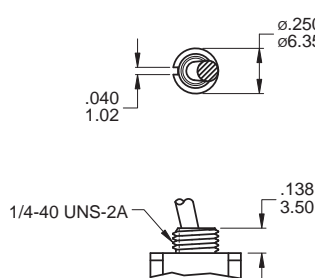


B15 THD STD
B16 NON-THD

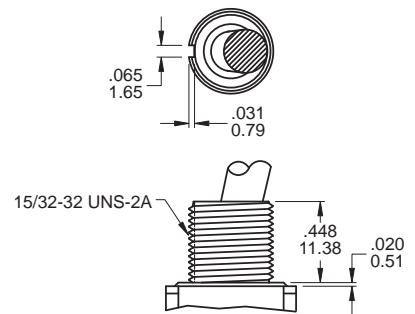


Use with T6 actuators only

B17

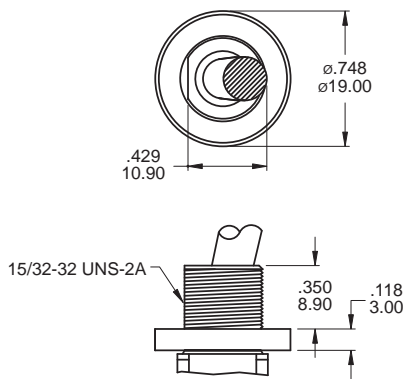


B13



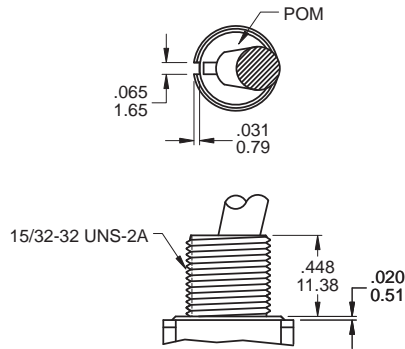
Use with T7, T8 actuators only
B13 Bear strength from top of actuator up to 10kg aside up to 15kg

B14 SPLASH PROOF



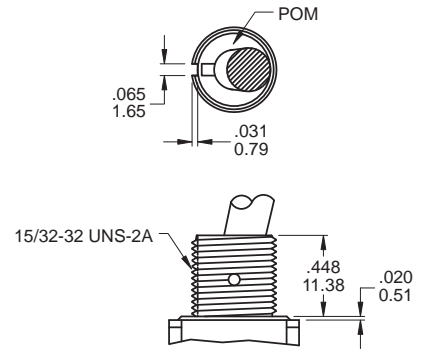
Use with T7, T8 actuators only

B18



Use with T7, T8 and TA actuators only with Plastic (POM) Insert

B20

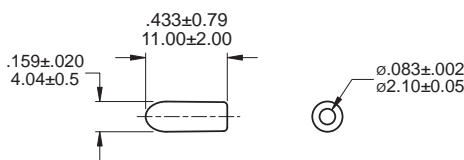


Use with T7, T8 and TA actuators only with Plastic (POM) Insert

B18, B20 Bear strength from top of actuator up to 20kg aside up to 15kg

OPTIONAL TOGGLE CAP

CP-1T1X



Use with T1 actuator

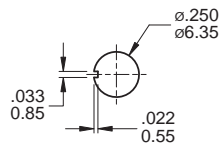
CAP Color :

| ITEM NO | COLOR |
|---------|-------------|
| 1 | White |
| 2 | Black (Std) |
| 3 | Red |
| 5 | Yellow |
| 6 | Green |
| 7 | Blue |
| 9 | Gray |

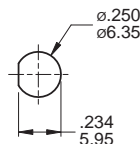
* Besides standard color, other colors need to check stocks available.

PANEL MOUNTING

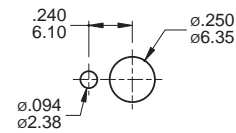
1/4 IN BUSHING



Without locking ring (Keyway)

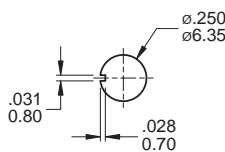


Without locking ring (Flat)

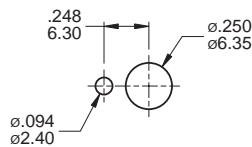


With standard locking ring.

METRIC BUSHING

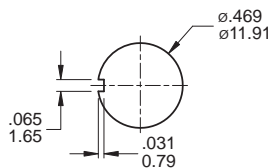


Without locking ring (Keyway)

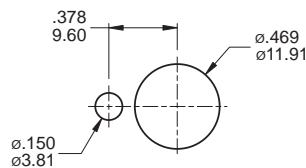


With standard locking ring.

15/32 IN BUSHING

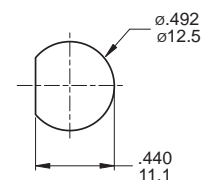


Without locking ring (Keyway)



With standard locking ring.

SPLASH PROOF BUSHING



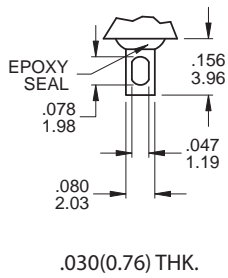
Without locking ring (Flat)

1M Series

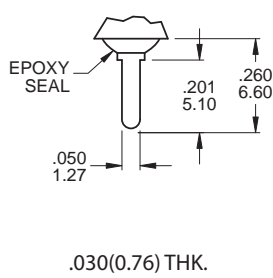
Miniature Toggle Switches

TERMINATION OPTIONS

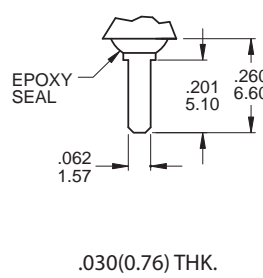
M1 Solder lug



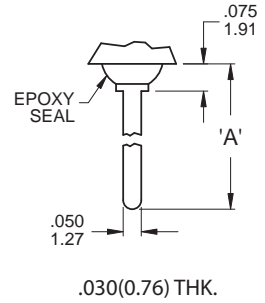
M2 PC Thru-hole



M3 Quick connect



M5 Wire Wrap



OTHER TERMINATION OPTIONS

M6 Right angle P.C. Mount

M7 Vertical right angle P.C. Mount

VS2 Vertical bracket P.C. Mount

VS3 Vertical bracket P.C. Mount

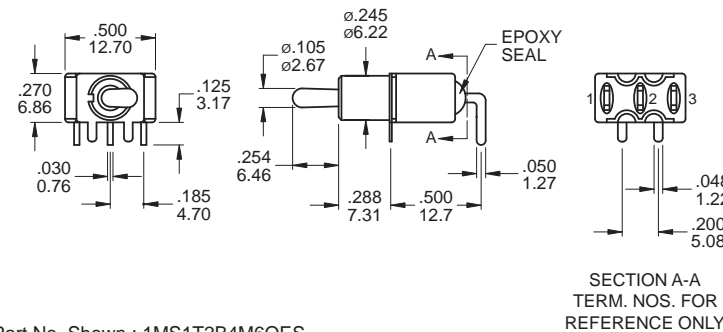
VS5 Vertical bracket P.C. Mount

M6N Right angle P.C. Mount with snap-in bracket

V2N Vertical bracket P.C. Mount with snap-in bracket

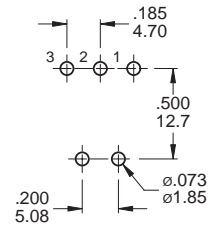
| OPTION CODE | DIM. 'A' |
|-------------|---------------|
| M51 | .736 (18.70) |
| M52 | .953 (24.20) |
| M53 | .415 (10.55) |
| M54 | 1.062 (26.97) |

M6



Part No. Shown : 1MS1T2B4M6QES

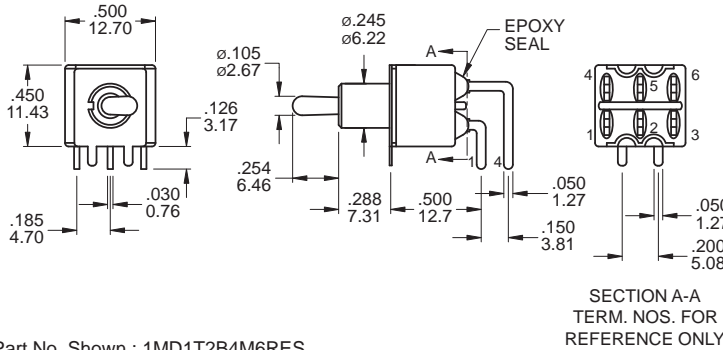
P.C. MOUNTING



SPDT

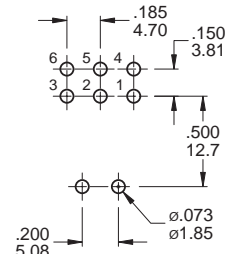
SECTION A-A
TERM. NOS. FOR
REFERENCE ONLY

M6



Part No. Shown : 1MD1T2B4M6RES

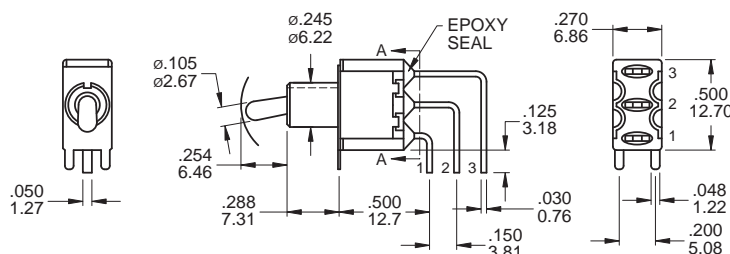
P.C. MOUNTING



DPDT

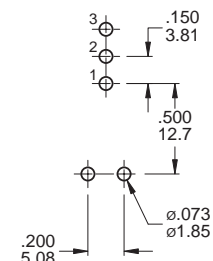
SECTION A-A
TERM. NOS. FOR
REFERENCE ONLY

M7



Part No. Shown : 1MS1T2B4M7QES

P.C. MOUNTING

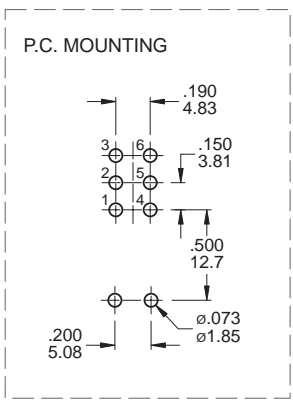
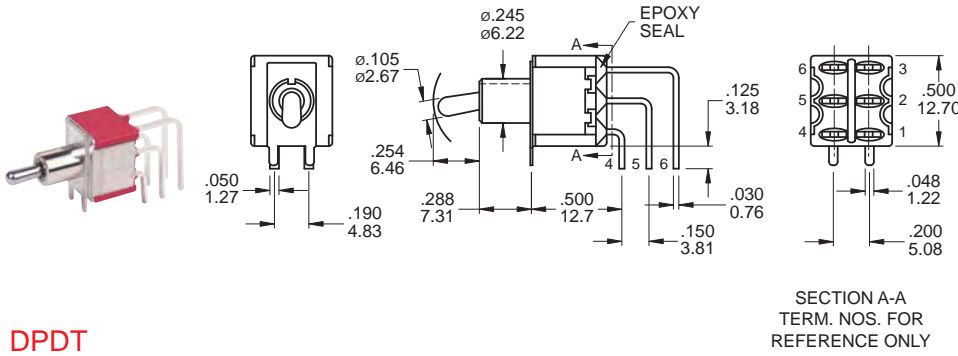


SPDT

SECTION A-A
TERM. NOS. FOR
REFERENCE ONLY

1M
Toggle Switches

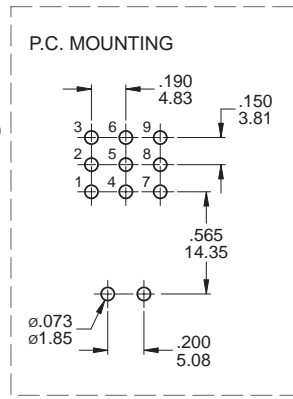
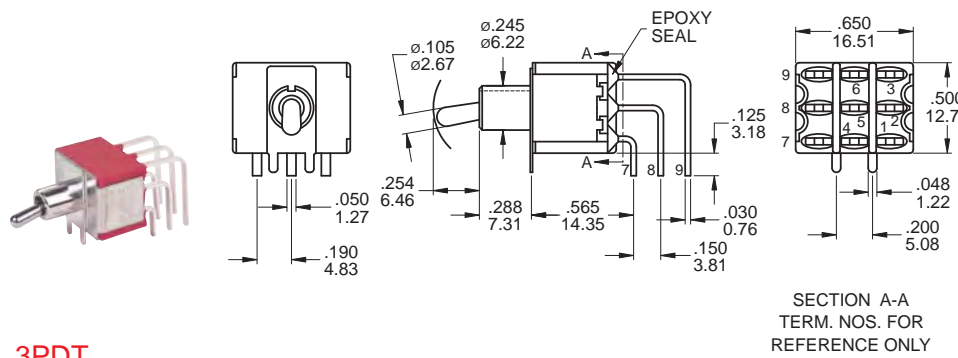
M7



DPDT

Part No. Shown : 1MD1T2B4M7QES

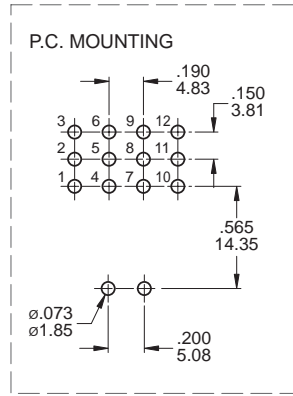
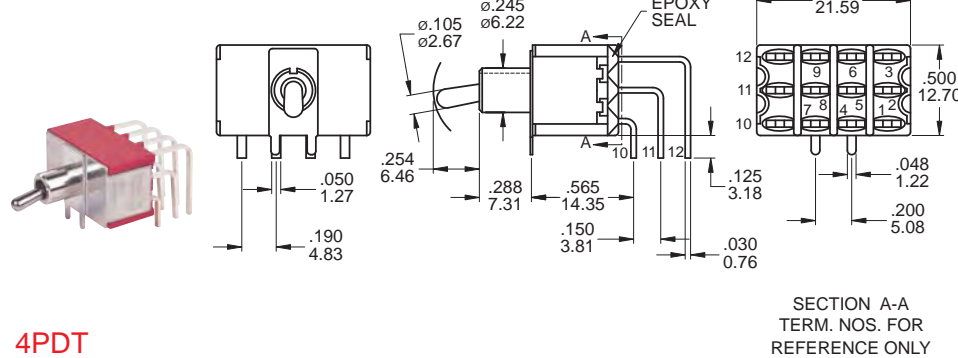
M7



3PDT

Part No. Shown : 1M31T2B4M7QES

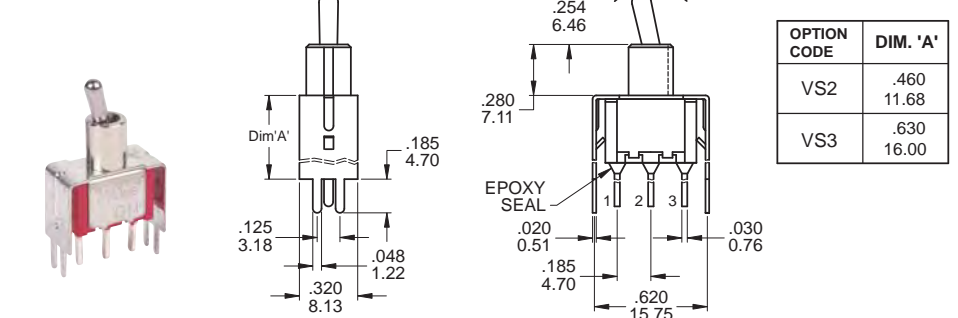
M7



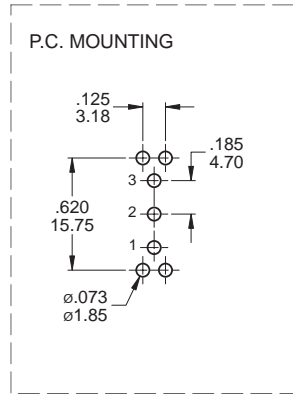
4PDT

Part No. Shown : 1M41T2B4M7QES

VS2 - VS3



| OPTION CODE | DIM. 'A' |
|-------------|---------------|
| VS2 | .460 11.68 |
| VS3 | .630 16.00 |



SPDT

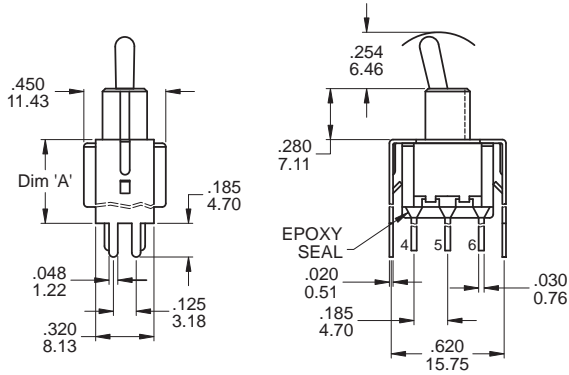
Part No. Shown : 1MS1T2B4VS2QES

1M Series

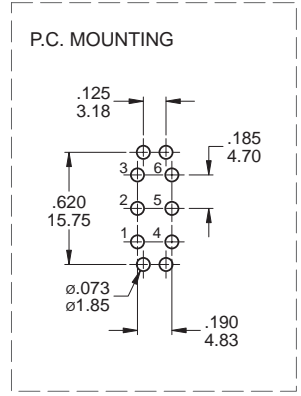
Miniature Toggle Switches

1M
Toggle Switches

VS2 - VS3



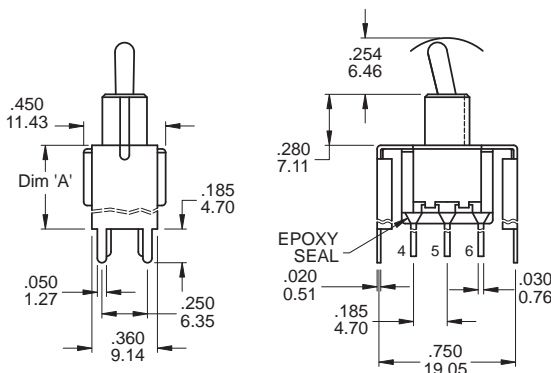
| OPTION CODE | DIM. 'A' |
|-------------|---------------|
| VS2 | .460 11.68 |
| VS3 | .630 16.00 |



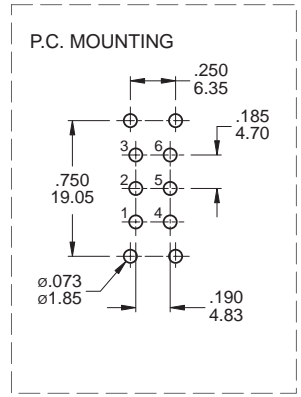
DPDT

Part No. Shown : 1MD1T2B4VS3QES

VS5



| OPTION CODE | DIM. 'A' |
|-------------|---------------|
| VS4 | .460 11.68 |
| VS5 | .630 16.00 |

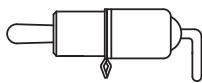
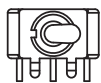


DPDT

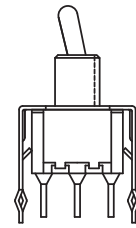
Part No. Shown : 1MD1T2B4VS5QES

SNAP-IN TERMINATION OPTIONS

M6N

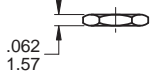
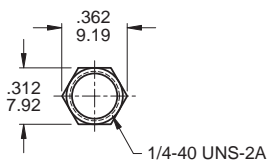


V2N



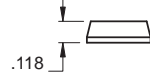
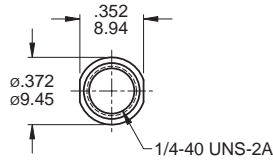
HARDWARE

1/4 NUT



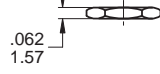
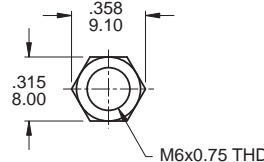
MNU-1M01A

DRESS NUT



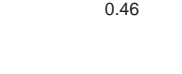
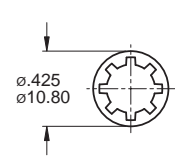
MNU-1M29

METRIC NUT



MNU-1M04

LOCKWASHER



MNU-1M03

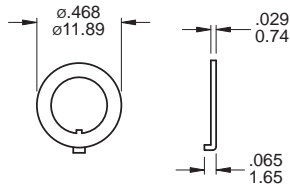
Supplied standard with B1, B3, B5, B6 and B9 options

Supplied standard with B8 metric bushing

Supplied standard with B1 / B3 bushing



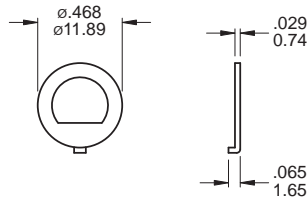
LOCKING RING



MNU-1M02

Locking ring supplied standard

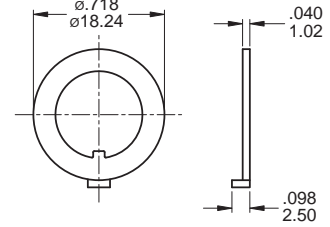
LOCKING RING



MNU-1M11

Locking ring supplied with B5 bushing

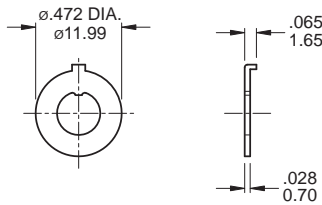
LOCKING RING



MNU-1M08

Locking ring supplied with B13, B18, B20 bushing

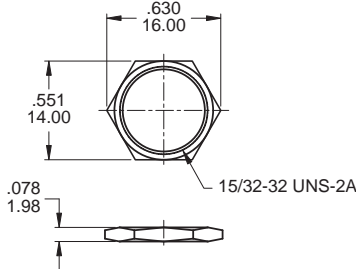
LOCKING RING



MNU-1M05

Locking ring supplied with B8 bushing

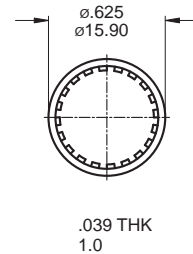
15/32 NUT



MNU1M07

Supplied standard with B13 bushing

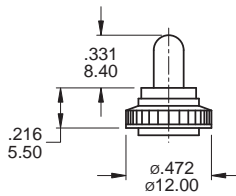
LOCKWASHER



MNU-1M09

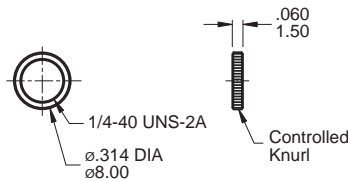
Supplied standard with B13 bushing

OPTIONAL RUBBER HOOD SEALING



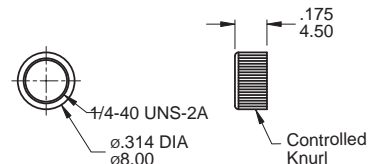
K1=Metric
E1=Inch (Std.)
for actuator T1, T2 and
B1, B3, B5, B6 Bushing only

DRESS NUT



MNU-1M18

DRESS NUT



MNU-1M24

CONTACT MATERIAL OPTIONS

| | CONTACT PLATING | TERMINAL PLATING | RATINGS |
|----------|------------------|------------------|---|
| Q | Silver | Silver | 5 Amps with resistant load @ 120VAC or 28VDC |
| C | Gold over Silver | Gold over silver | 2 Amps with resistant load @ 250VAC |
| R | Gold | Gold | 0.4 Volt - Amps (VA) max. @ 20V max. (AC or DC) |

SOLDERING PROCESSES

MANUAL SOLDERING: Use soldering iron of 30 watts, controlled at 350°C approximately 5 seconds while applying solder.

WAVE SOLDERING: Recommended Soldering Temperature: 270 ± 5°C
Duration of Solder Immersion: Max 5 sec. (PCB is 1.6mm in thickness)