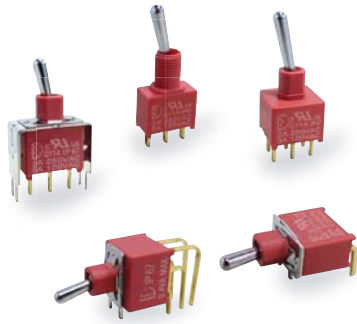


# 1A Series

Sealed Miniature Toggle Switches

1A  
Toggle Switches



IP 67  
ACCORDING TO  
EN 60529:1991+A1:2001  
IEC 60529:2001

C **UL** US  
E 187490

**RoHS**  
compliant

**Pb**  
lead-free

## SPECIFICATIONS

**CONTACT RATING:** Dependent upon contact material See page 17.

**MECHANICAL LIFE:** 30,000 make-and-break cycles.

**CONTACT RESISTANCE:** 10 mΩ 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 & BUSHING:** Glass filled nylon 6/6, flame retardant, heat stabilized (UL94v-0).

**ACTUATOR:** Brass, chrome plated with internal, O-ring seal standard.

**SWITCH SUPPORT:** Brass or steel, tin plated.

**SWITCH SUPPORT RETAINER:** Stainless steel.

**CONTACT / TERMINALS:** Copper alloy, with Silver or gold plated.  
(See Page 17)

## HOW TO ORDER

| MODEL NO.  | ACTUATOR   | BUSHING  | TERMINATIONS  | TERMINAL PLATING  | SEAL                             | RoHS SOLDERING                                      |
|--|--|--|---|---|----------------------------------|---|
| <p>Model NO.</p> <p>1AS1 SP On-None-On</p> <p>1AS2 SP On-None-Mom.</p> <p>1AS3 SP On-Off-On</p> <p>1AS4 SP Mom.-Off-Mom.</p> <p>1AS5 SP On-Off -Mom.</p> <p>1AD1 DP On-None-On</p> <p>1AD2 DP On-None-Mom.</p> <p>1AD3 DP On-Off-On</p> <p>1AD4 DP Mom.-Off-Mom.</p> <p>1AD5 DP On-Off-Mom.</p> <p>1AD6 DP On-On-On</p> <p>1AD7 DP Mom.-On-Mom.</p> <p>1AD8 DP On-On-Mom.</p> <p>1A31 3P On-None-On</p> <p>1A32 3P On-None-Mom.</p> <p>1A33 3P On-Off-On</p> <p>1A34 3P Mom.-Off-Mom.</p> <p>1A35 3P On-Off-Mom.</p> | <p>Actuator</p> <p>T1 12.70 high</p> <p>T2 7.62 high</p> <p>TA Plastic, black 12.70 high</p> <p>TB Plastic, black 7.62 high</p> <p>TC Plastic, silver 12.70 high</p> | <p>Bushing</p> <p>B1 8.89 high</p> <p>B4 6.10 high</p> | <p>Terminations</p> <p>M1 Solder Lug</p> <p>M2 PC thru-hole</p> <p>M51 18.70 high, wire wrap</p> <p>M52 24.20 high, wire wrap</p> <p>M53 10.55 high, wire wrap</p> <p>M54 26.97 high, wire wrap</p> <p>M6 Right angle, PC thru-hole</p> <p>M6N Right angle, snap-in, PC thru-hole</p> <p>M7 Vertical right angle, PC thru-hole</p> <p>VS2 11.68 high, V-bracket</p> <p>V2N 11.68 high, snap-in V-bracket</p> <p>VS3 16.00 high, V-bracket</p> | <p>Terminal plating</p> <p>Q Gold flash over silver</p> <p>R Gold</p> <p>C Gold over silver</p> | <p>Seal</p> <p>E EPOXY (std)</p> | <p>RoHS soldering</p> <p>S RoHS &amp; Lead Free</p> |

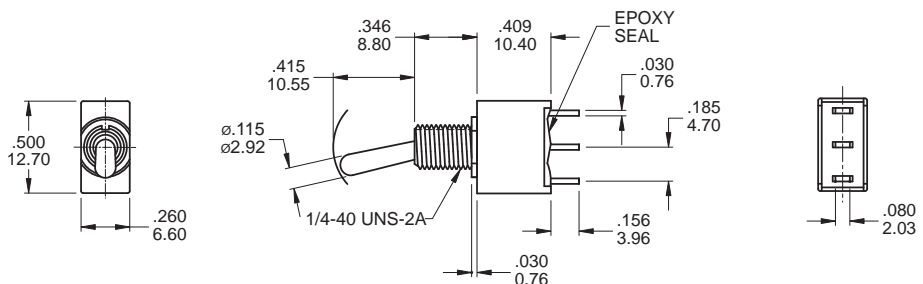
## SWITCH FUNCTION

| 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        | Q11A11           | 1AS1      | ON              | NONE  | ON    |                                 | N/A     |             |         |
|           | Q11A12           | 1AS2      | ON              | NONE  | MOM   | 2-3                             |         | 2-1         |         |
|           | Q11A13           | 1AS3      | ON              | OFF   | ON    |                                 | OPEN    |             |         |
|           | Q11A14           | 1AS4      | MOM             | OFF   | MOM   |                                 |         |             |         |
|           | Q11A15           | 1AS5      | ON              | OFF   | MOM   |                                 |         |             |         |
| DP        | Q11A21           | 1AD1      | ON              | NONE  | ON    |                                 | N/A     |             |         |
|           | Q11A22           | 1AD2      | ON              | NONE  | MOM   | 2-3,5-6                         |         | 2-1,5-4     |         |
|           | Q11A23           | 1AD3      | ON              | OFF   | ON    |                                 | OPEN    |             |         |
|           | Q11A24           | 1AD4      | MOM             | OFF   | MOM   |                                 |         |             |         |
|           | Q11A25           | 1AD5      | ON              | OFF   | MOM   |                                 |         |             |         |
|           | ▲                | Q11A27    | 1AD7            | MOM   | ON    | MOM                             | 2-3,5-6 | 2-3,5-4     | 2-1,5-4 |
|           | ▲                | Q11A28    | 1AD8            | ON    | ON    | MOM                             |         |             |         |
|           | 3P               | Q11A31    | 1A31            | ON    | NONE  | ON                              |         | N/A         |         |
| Q11A32    |                  | 1A32      | ON              | NONE  | MOM   | 2-3,5-6,8-9                     |         | 2-1,5-4,8-7 |         |
| Q11A33    |                  | 1A33      | ON              | OFF   | ON    |                                 | OPEN    |             |         |
| Q11A34    |                  | 1A34      | MOM             | OFF   | MOM   |                                 |         |             |         |
| Q11A35    |                  | 1A35      | ON              | OFF   | MOM   |                                 |         |             |         |

MOM=MOMENTARY

▲ Please check the availability in advance before order

## POLE OPTIONS



SPDT

Part No. Shown : 1AS1T1B1M1QES

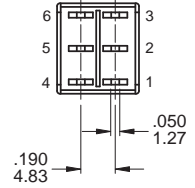
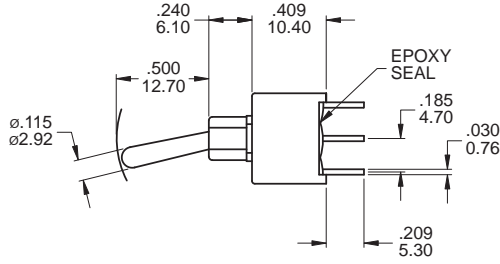
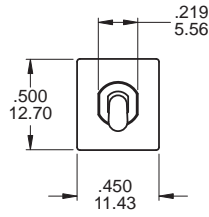


1A  
Toggle Switches

# 1A Series

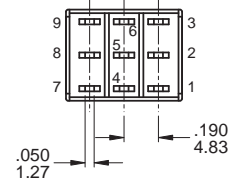
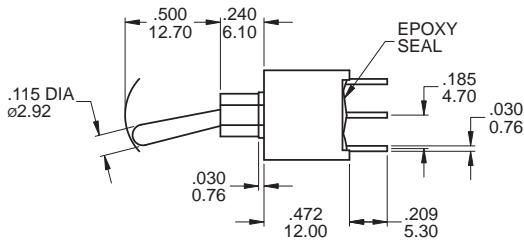
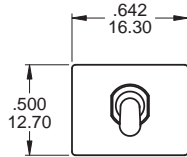
Sealed Miniature Toggle Switches

1A  
Toggle Switches



DPDT

Part No. Shown : 1AD1T1B4M2QES



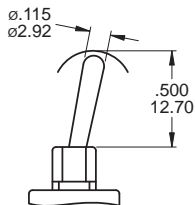
3PDT

Part No. Shown : 1A31T1B4M2QES

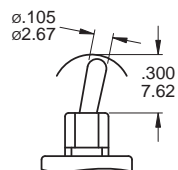
## ACTUATOR OPTIONS

Actuator shown with standard B4 Bushing,  
Subtract .085 (2.15) for B1 bushing.

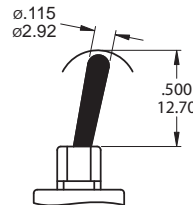
T1



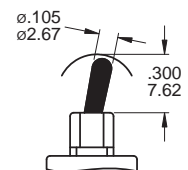
T2



TA



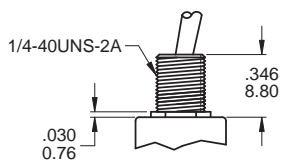
TB



PLASTIC ACTUATOR  
(TC, Silver)

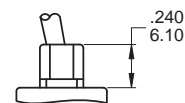
## BUSHING OPTIONS

B1



Std for M1

B4

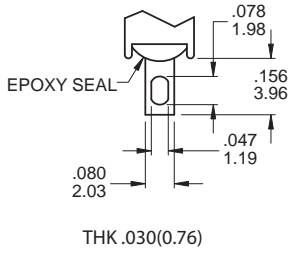


Std for M2, M6, M7, VS termination

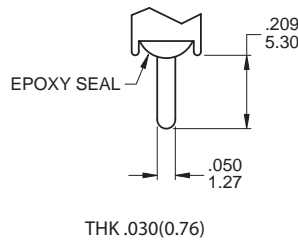


### TERMINATION OPTIONS

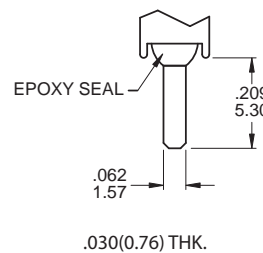
#### M1 Solder lug



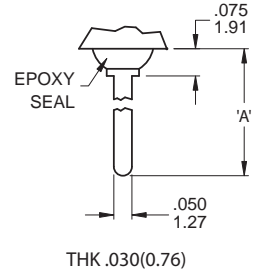
#### M2 PC Thru-hole



#### 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

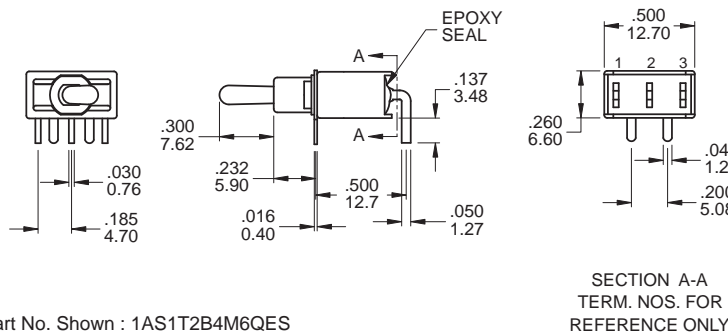
**VS3** Vertical bracket P.C. Mount

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

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

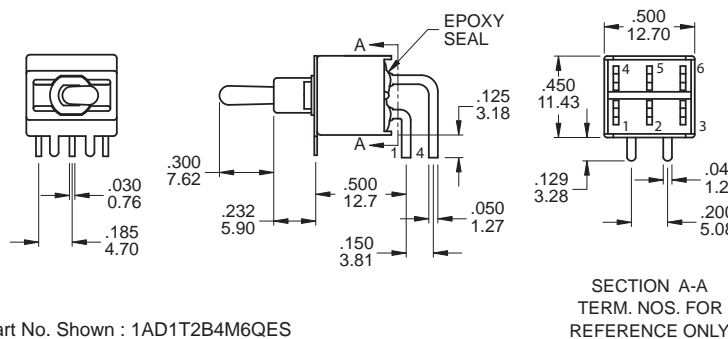
| OPTION CODE | DIM. 'A'        |
|-------------|-----------------|
| M51         | .736 ( 18.70 )  |
| M52         | .953 ( 24.20 )  |
| M53         | .415 ( 10.55 )  |
| M54         | 1.062 ( 26.97 ) |

#### M6



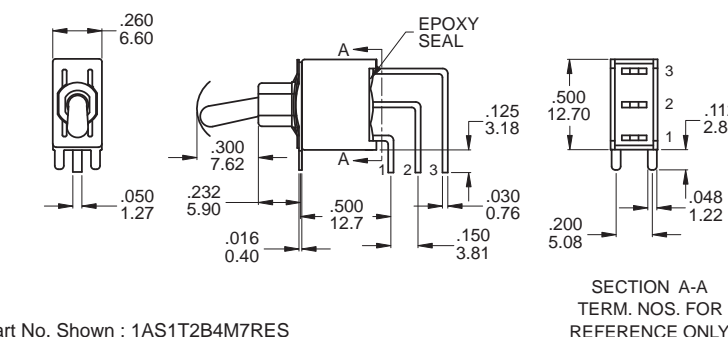
#### SPDT

#### M6



#### DPDT

#### M7



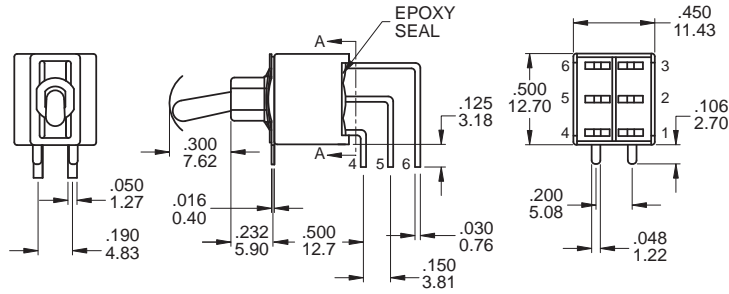
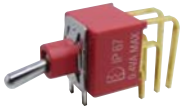
#### SPDT

# 1A Series

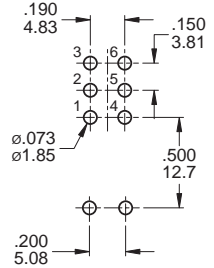
Sealed Miniature Toggle Switches

1A  
Toggle Switches

M7



P.C. MOUNTING

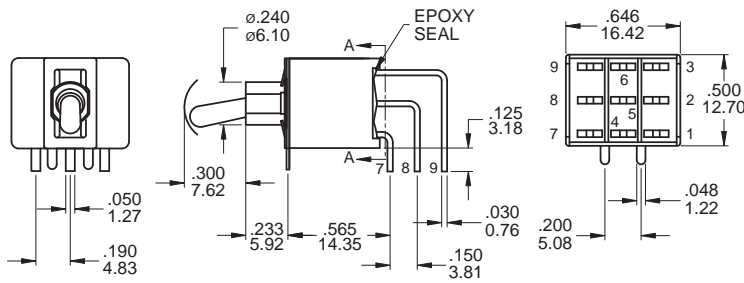


SECTION A-A  
TERM. NOS. FOR  
REFERENCE ONLY

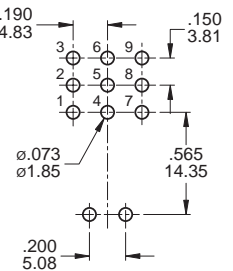
DPDT

Part No. Shown : 1AD1T2B4M7RES

M7



P.C. MOUNTING

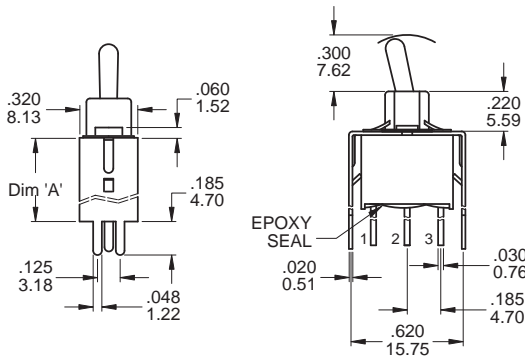


SECTION A-A  
TERM. NOS. FOR  
REFERENCE ONLY

3PDT

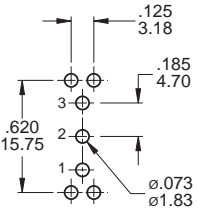
Part No. Shown : 1A31T2B4M7QES

VS2 - VS3



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

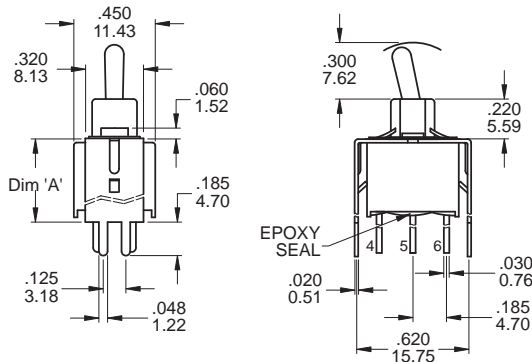
P.C. MOUNTING



SPDT

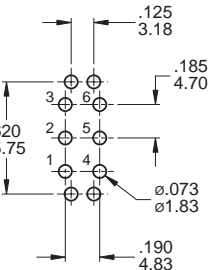
Part No. Shown : 1AS1T2B4VS2QES

VS2 - VS3



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

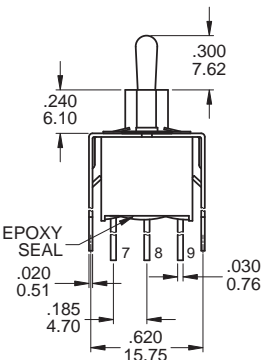
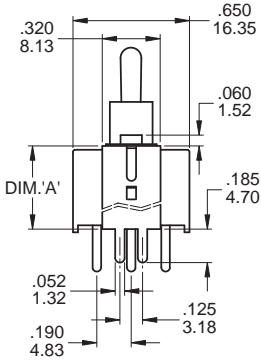
P.C. MOUNTING



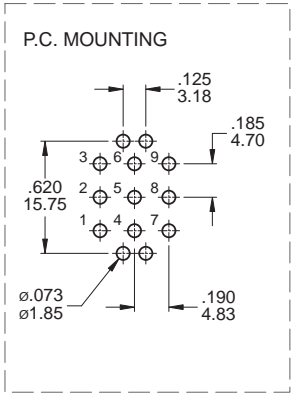
DPDT

Part No. Shown : 1AD1T2B4VS2QES

**VS2 - VS3**



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



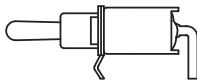
1A  
Toggle Switches

**3PDT**

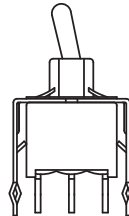
Part No. Shown : 1A31T2B4VS2QES

## SNAP-IN TERMINATION OPTIONS

**M6N**

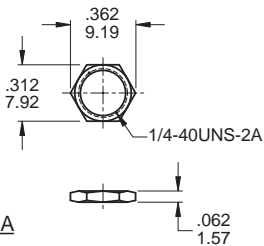


**V2N**



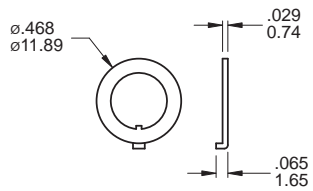
## HARDWARE

**1/4 NUT**



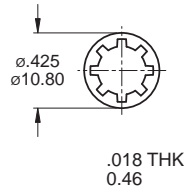
MNU-1M01A

**LOCKING RING**



MNU-1M02

**LOCKWASHER**



MNU-1M03

## CONTACT MATERIAL OPTIONS

|          | CONTACT PLATING  | TERMINAL PLATING                  | RATINGS   |
|----------|------------------|-----------------------------------|---|
| <b>Q</b> | Silver           | <b>Q</b> = Gold flash over silver | 5 Amps with resistant load @ 120VAC or 28VDC<br>2 Amps with resistant load @ 250VAC |
| <b>C</b> | Gold over Silver | <b>C</b> = Gold over silver       |   |
| <b>R</b> | Gold             | <b>R</b> = 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)

# 1A Series

Sealed Toggle Switches

## SPECIFICATIONS

**CONTACT RATING:** 0.4Volt-Amps(VA) max.@20V max(AC or DC)

**MECHANICAL LIFE:** 100,000 make-and-break cycles.

**ELECTRICAL LIFE:** 50,000 cycles.

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

**INSULATION RESISTANCE:** 1,000 MΩ min.

**DIELECTRIC STRENGTH:** 1,000 V RMS@sea level.

**OPERATING TEMPERATURE:** -30°C to 85°C.

## GENERAL SPECIFICATIONS

**TORQUE:** 0.8Nm max. applied to unt.

**PANEL THICKNESS:** 6mm max. ,2mm min.

## MATERIALS

**CASE & BUSHING:** Glass filled nylon 6/6, flame retardant.heat stabilized (UL94v-0).

**ACTUATOR:** Brass,chrome plated with internal,O-ring seal standard.

**SWITCH SUPPORT:** Brass or steel,tin plated.

**CONTACT / TERMINALS:** Copper alloy,gold plated.

**SEALIND:** IP67.

## SWITCH FUNCTION

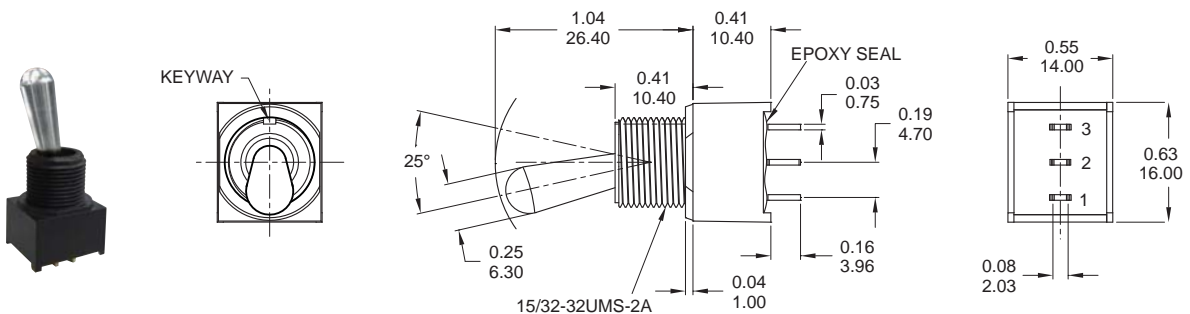
IP 67  
ACCORDING TO  
EN 60529:1991+A1:2001  
IEC 60529:2001



| NO. POLES | MODEL NO. | SWITCH FUNCTION |       |       | CONNECTED TERMINALS / SCHEMATIC |          |         |
|-----------|-----------|-----------------|-------|-------|---------------------------------|----------|---------|
|           |           | POS.1           | POS.2 | POS.3 | POS.1                           | POS.2    | POS.3   |
|           |           |                 |       |       |                                 |          |         |
| SP        | 1AS1      | ON              | NONE  | ON    | 2-3<br>                         | N/A      | 2-1<br> |
|           | 1AS2      | ON              | NONE  | MOM   |                                 | OPEN<br> |         |
|           | 1AS3      | ON              | OFF   | ON    |                                 |          |         |
|           | 1AS4      | MOM             | OFF   | MOM   |                                 |          |         |
|           | 1AS5      | ON              | OFF   | MOM   |                                 |          |         |
|           | 1AS9      | ON              | NONE  | OFF   | 2-3                             | N/A      | OPEN    |
|           | 1ASD      | MOM             | NONE  | OFF   |                                 |          |         |

MOM=MENTORY

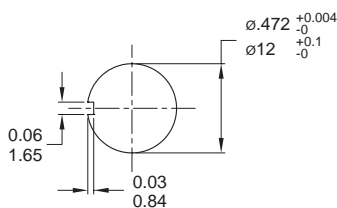
## M1



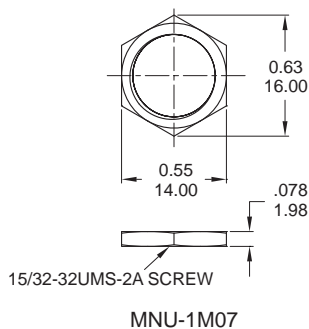
Part No. Shown : 1AS1T8B22M1RPES

## PANEL MOUNTING / HARDWARE

### PANEL MOUNTING



### NUT



### SEALING BOOTS

