

➔ **Product Type**
PC Mount Miniature & Sub-Miniature Toggle Switches

➔ **Product Series**
2M-Series

➔ **Description**

The 2M family of miniature toggle switches is composed of three switch series:

2M1-Series miniature toggle switch

2MS-Series sealed miniature toggle switch

2M2-Series nylon miniature toggle switch

These series of PC mount sub-miniature toggle switches offer a variety of ratings, circuits, contact materials, terminal platings, toggle styles and lengths, and optional color caps.

The 2MS-Series are sealed switches that are UL and CUL approved and IP67 certified. The 2M1-Series of switches has UL & CSA agency approvals. All series within the 2M family of switches are able to withstand temperatures from -30°C to +85°C, and all offer PC mounting.

Certifications

2M1-Series: UL, CSA
2MS-Series: UL, CUL, IP67
2M2-Series: UL, CUL

Number of Poles

2M1-Series: 1-4 poles
2MS-Series & 2M2-Series: 1-3 poles

Ratings

5A @ 125 VAC or 28VDC
2A @ 250VAC

Dielectric Strength

0.4VA max @ 20V max (AC/DC)

Insulation Resistance

1500 Volts RMS @ sea level

Actuator Style

1000 megohms (minimum)

Round bat toggles
paddles
retangular toggle
flat toggle
locking lever

Case Material

all UL94 V-0
2M1-Series: Dially phthalate (DAP)
2MS-Series & 2M2-Series: Glass filled nylon 6/6,
flame retardant, heat stabilized

Toggle Material

2M1-Series: Brass, chrome plated
2MS-Series & 2M2-Series: Brass, chrome plated,
internal o-ring sealed

Bushing Material

2M1-Series: Brass, nickel plated
2MS-Series & 2M2-Series: Glass filled nylon 6/6,
flame retardant, heat stabilized (UL
94V-0)

Housing Material

Stainless Steel

Switch Support

Brass, tin plated

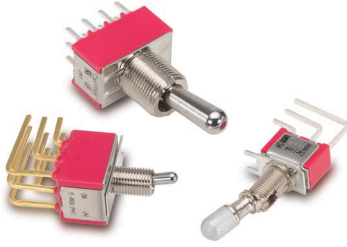
Terminal Options

- Solder Lug
- PCB
- PC Mount
- Snap-in, U bracket
- Wire Wrap

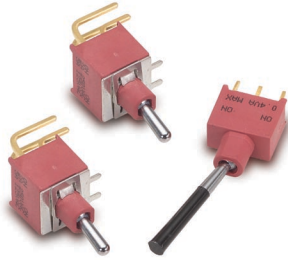
Mounting Hole Dimensions

See PDF elibrary file above for dimensions

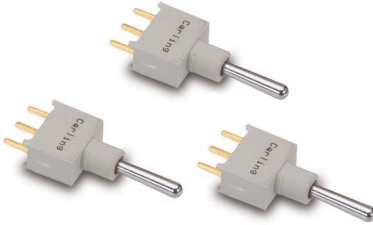
2M1-Series
Miniature Toggle Switch



2MS-Series
Sealed Nylon
Miniature Toggle Switch



2M2-Series
Nylon Miniature Toggle Switch



Specifications

Contact Rating refer to ordering scheme
 Electrical Life 50,000 make & break cycles @ full load
 Contact Resistance. 10 mΩ max. initial @ 2-4 VDC
 100mA for both silver & gold plated contacts.
 Insulation Resistance 1000 MΩ min.
 Dielectric Strength 1500 Volts RMS @ sea level
 Operating Temperature . . . -30°C to +85°C
 Index of Protection **2MS-Series:** IP67
 Solder Heat Resistance. . . MIL-STD-202, Method 210
 Actuator Travel 25°

Materials

Case **2M1-Series:** Diallyl phthalate (DAP) (UL 94V-0)
2MS & 2M2-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)
 Toggle. **2M1-Series:** Brass, chrome plated.
2MS & 2M2-Series: Brass, chrome plated, internal o-ring sealed
 Bushing **2M1-Series:** Brass, nickel plated
2MS & 2M2-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)
 Housing. Stainless Steel
 Switch Support Brass, tin plated
 Terminal Seal Epoxy

2M1-Series Accessories

To order accessories assembled on a switch, specify the switch number followed by the accessory part number and the word "assembled".

Ex: 2M1-SP1-T1-B1-M1QE-T12ASSEMBLED

To order accessories in bulk, specify the Series, followed by the accessory. Ex.) 2M1-T12.

Optional Toggle Cap

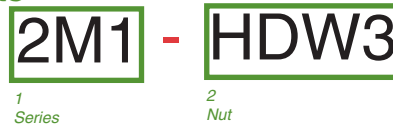


1 SERIES OR SWITCH CATALOG NUMBER 2M1, 2MS or 2M2	
2 TOGGLE CAP SIZE	
T1 10.6mm	T2 7.6mm

3 CAP COLOR¹					
1	white	3	red	6	green
2	black	5	yellow	7	blue

NOTE
 1 Black, white & red are standard. Additional colors available. Consult factory.

Optional Dress and Knurled Nuts



1 SERIES OR SWITCH CATALOG NUMBER 2M1, 2MS or 2M2

2 NUT	
HDW3	dress nut for 1/4" bushing
HDW5	knurled nut for 15/32" bushing (2M1-Series only)

Optional Rubber Hood



1 SERIES OR SWITCH CATALOG NUMBER 2M1, 2MS or 2M2

2 RUBBER HOOD	
E1A	rubber hood sealing (for all bushings except B0).

2M1-Series Ordering Scheme


1 SERIES
2M1 Miniature Toggle Switch

2 POLES
SP single pole - uses terminals 1, 2 & 3.
DP double pole uses terminals 1,2, 3, 4, 5 & 6.
3P three pole uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 9.
4P four pole uses terminals 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 & 11.

3 CIRCUIT
 () - momentary

	Switching Position:		
	2-3, 5-6, 8-9, 11-12	OPEN	2-1, 5-4, 8-7, 11-10
1	ON	NONE	ON
2	ON	NONE	(ON)
3	ON	OFF	ON
4	(ON)	OFF	(ON)
5	ON	OFF	(ON)
6'	ON	ON	ON

NOTE:
 1 ON-ON-ON available with DP and 4P switches only.

4 ACTUATOR

T1 round bat	T8 extra-large bat (with B0 bushing)
T2 round short bat	T9 black plastic
T3 paddle	T0 rectangular
T4 medium paddle	TA locking lever
T5 long paddle	TI locking lever
T6 flat (with B1, B2 or B5 bushing)	TL locking lever
T7 large bat (with B0 bushing)	

5 BUSHING

B1 Threaded Standard, keyway
B2 Non-Threaded Standard, keyway
B3 Threaded Short, keyway
B4 Non-Threaded Short, keyway
B5 High Torque, 7.5mm, flat
B6 High Torque, 8.0mm, keyway
B7 Long threaded
B8² Metric
B9 Splashproof
B0 15/32" Threaded (Standard for T7 and T8 actuator styles)

6 TERMINATION

M1	Solder Lug
M2	PCB
M3	Quick Connect
M5-1	Wire Wrap .750 [19.05]
M5-2	Wire Wrap [24.48]
M5-3	Wire Wrap [10.80]
M5-4	Wire Wrap [26.97]
M6	PC Mount, 90° horizontal
M7	PC Mount, 90° vertical
VS2	PC Mount, U bracket, .620 mounting x .460 high
VS3	PC Mount, U bracket, .620 mounting x .630 high
VS4	PC Mount, U bracket, .750 mounting x .460 high
VS5	PC Mount, U bracket, .750 mounting x .630 high
VS21	Snap-In, U bracket

7 CONTACT

	Material	Terminal Plating	Rating	Approvals
G	silver ¹	gold over silver ²	5A @ 125VAC or 28VDC, 2A @ 250VAC	UL CSA
K	gold ²	tin-lead ⁴	0.4VA max. @20V max (AC/DC)	-
P	silver ¹	tin-lead ⁴	5A @ 125VAC or 28VDC, 2A @ 250VAC	UL CSA
Q	silver ¹	silver ¹	5A @ 125VAC or 28VDC, 2A @ 250VAC	UL CSA
R	gold ²	gold ²	0.4VA max. @20V max (AC/DC)	-

NOTE:
 Tin-lead option available with PC type terminations only.

- 1 Moveable contact & terminals: copper alloy, silver plate
- 2 Moveable contact & terminals: copper alloy with gold plate over nickel plate
- 3 Terminals: silver plate with outer layer in gold plating
- 4 Outer terminals: copper alloy with tin-lead over nickel plate

8 EPOXY SEAL
E epoxy seal

NOTES:
 All switches come with standard nut, washer and locking ring shipped bulk.
 T7 and T8 actuator styles come with a larger nut, washer and locking ring, to accommodate the switch.
 Additional nut styles available. See page 26.
 Custom colors available, consult factory.
 Rubber seal available. Order part number E1A separately.

2M-Series Dimensional Specifications: in. [mm]

2M1-Series

ACTUATOR

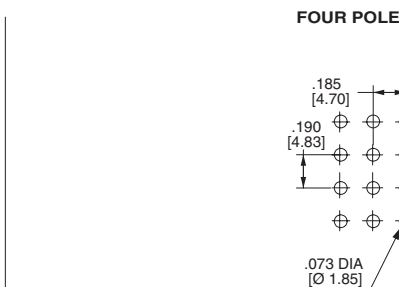
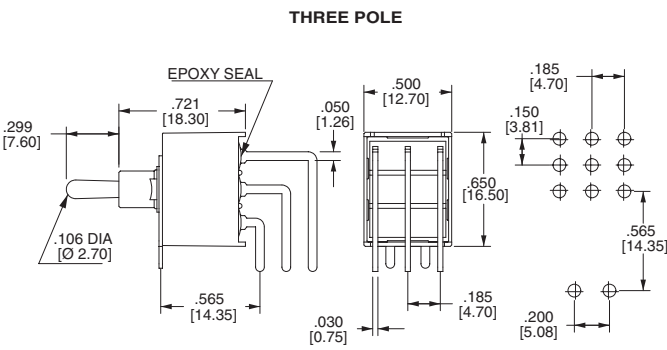
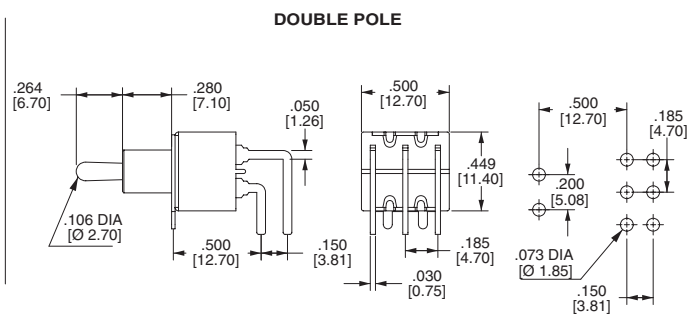
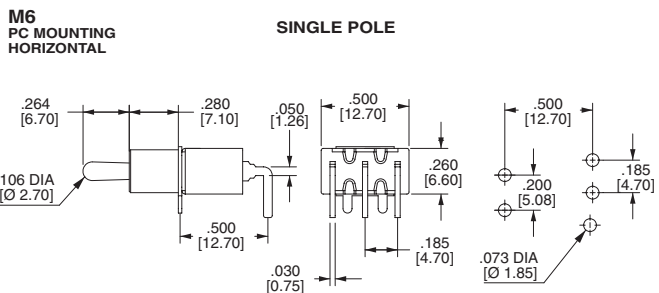
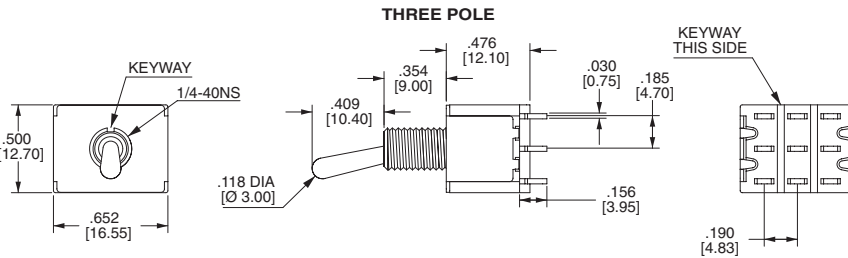
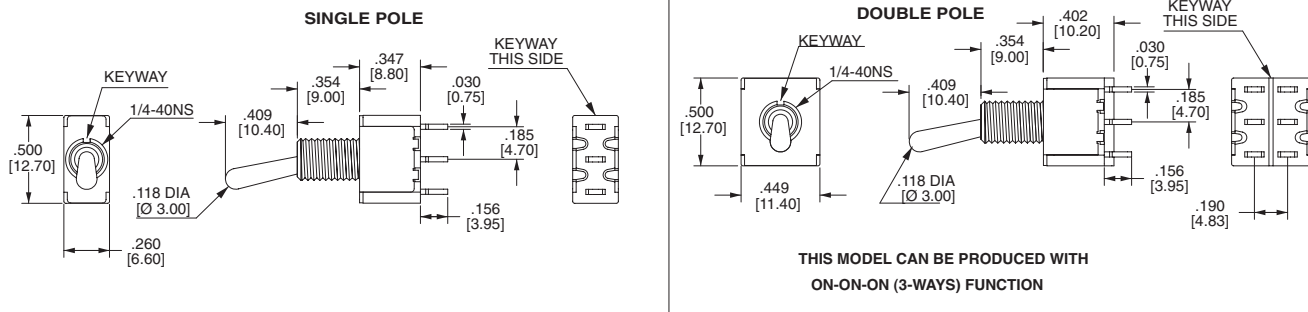
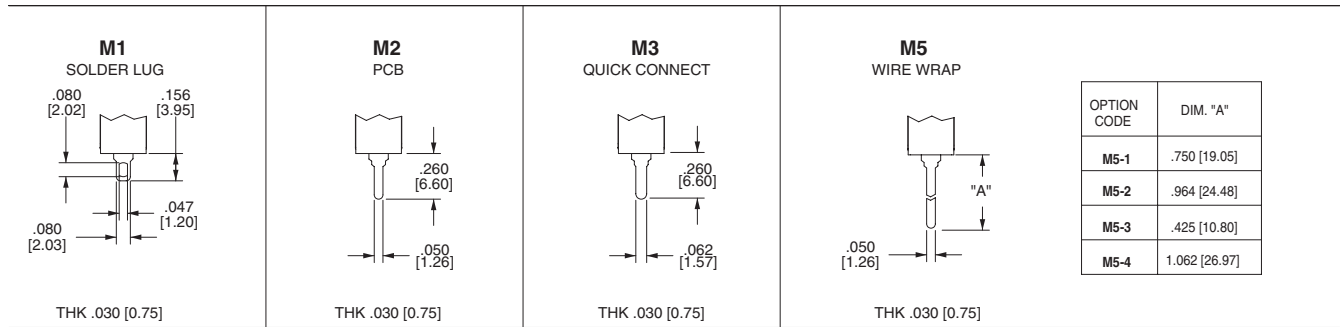
<p>T1 ROUND BAT</p> <p>DIMENSION = .461 [11.70] WITH NON THREADED BUSHING B4</p>	<p>T2 ROUND SHORT BAT</p> <p>DIMENSION = .264 [6.70] WITH NON THREADED BUSHING B4</p>	<p>T3 PADDLE</p> <p>DIMENSION = .134 [3.40] WITH NON THREADED BUSHING B4</p>	<p>T4 MEDIUM PADDLE</p> <p>DIMENSION = .105 [7.90] WITH NON THREADED BUSHING B4</p>	<p>T5 LONG PADDLE</p> <p>DIMENSION = .105 [7.90] WITH NON THREADED BUSHING B4</p>
<p>T6 FLAT</p> <p>WITH BUSHING OPTIONS B1, B2, B5 ONLY</p>	<p>T7 LARGE BAT</p> <p>FOR T7, T8, ACTUATOR, BUSHING OPTION CODE IS NOT REQUIRED. ALL OTHER ACTUATOR LENGTHS SHOWN WITH BUSHING B1.</p>	<p>T8 EXTRA LARGE BAT</p> <p>FOR T7, T8, ACTUATOR, BUSHING OPTION CODE IS NOT REQUIRED. ALL OTHER ACTUATOR LENGTHS SHOWN WITH BUSHING B1.</p>	<p>T9 BLACK PLASTIC</p>	<p>T0 RECTANGULAR</p>
<p>TA LOCKING LEVER CURVED WITH TAPERED STEM</p> <p>CIRCUIT 1 FOR SP-1, DP-1 3P-1, 4P-1 ONLY</p> <p>CIRCUIT 3 FOR SP-3, DP-3 3P-3, 4P-3 ONLY</p>		<p>TI LOCKING LEVER CURVED WITH STRAIGHT STEM</p> <p>CIRCUIT 1 FOR SP-1, DP-1 3P-1, 4P-1 ONLY</p> <p>CIRCUIT 3 FOR SP-3, DP-3 3P-3, 4P-3 ONLY</p>		<p>TL LOCKING LEVER ROUNDED WITH TAPERED STEM</p> <p>FOR SP-1, DP-1 3P-1, 4P-1 ONLY</p> <p>FOR SP-3, DP-3 3P-3, 4P-3 ONLY</p>

BUSHING

<p>B1 STANDARD KEYWAY THREADED SHOWN</p> <p>B2 STANDARD KEYWAY NON-THREADED</p>	<p>B3 SHORT KEYWAY THREADED SHOWN</p> <p>B4 SHORT KEYWAY NON-THREADED</p>	<p>B5 7.5mm FLAT HIGH TORQUE</p>	<p>B6 8.0mm FLAT HIGH TORQUE</p>	
<p>B7 LONG THREADED</p>	<p>B8 METRIC</p>	<p>K1 METRIC BOOT</p>	<p>B9 SPLASH-PROOF</p>	<p>B0 15/32" THREADED BUSHING</p> <p>FOR T7, T8, ACTUATOR, BUSHING OPTION CODE IS NOT REQUIRED. ALL OTHER ACTUATOR LENGTHS SHOWN WITH BUSHING B1.</p>

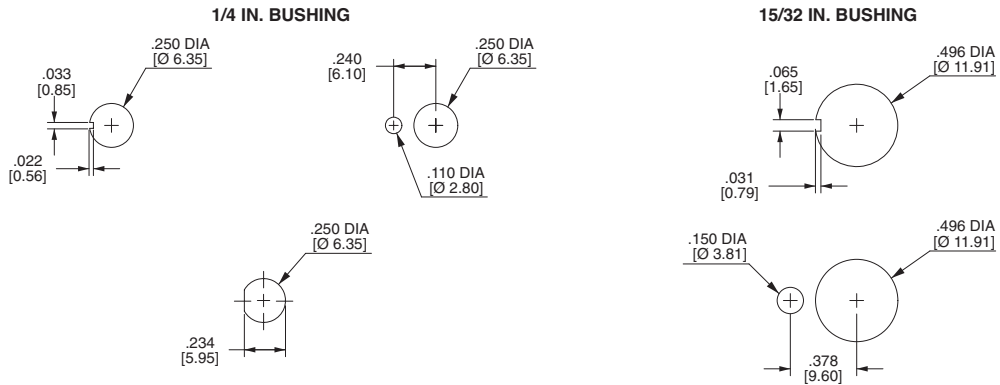
2M-Series Dimensional Specifications: in. [mm]

TERMINATION

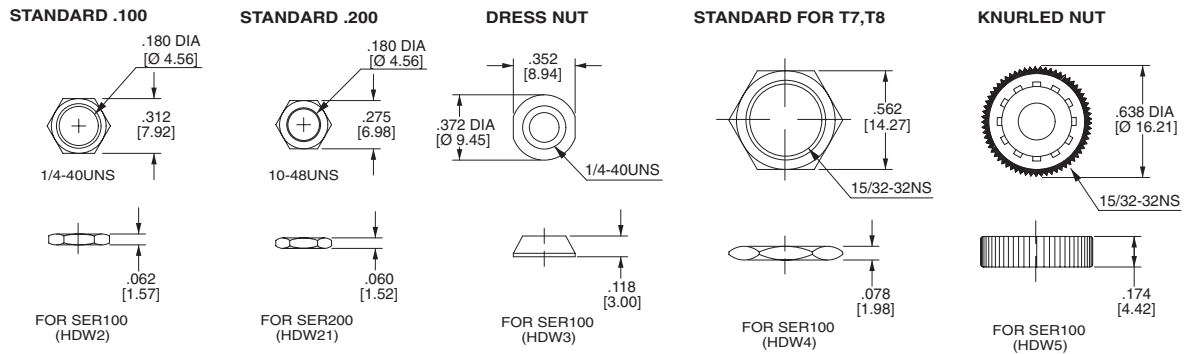


2M-Series Dimensional Specifications: in. [mm]

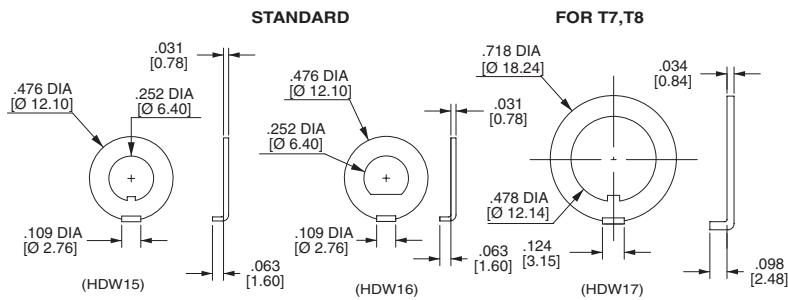
PANEL MOUNTING



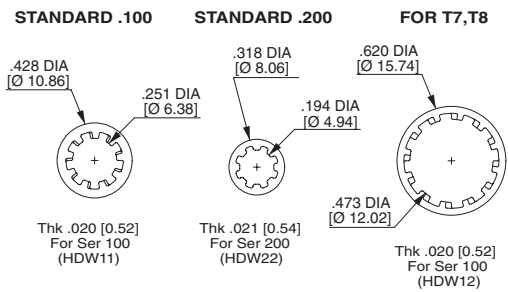
NUT



LOCKING RING

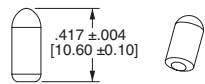


LOCK WASHER



TOGGLE CAPS

T1



T2

