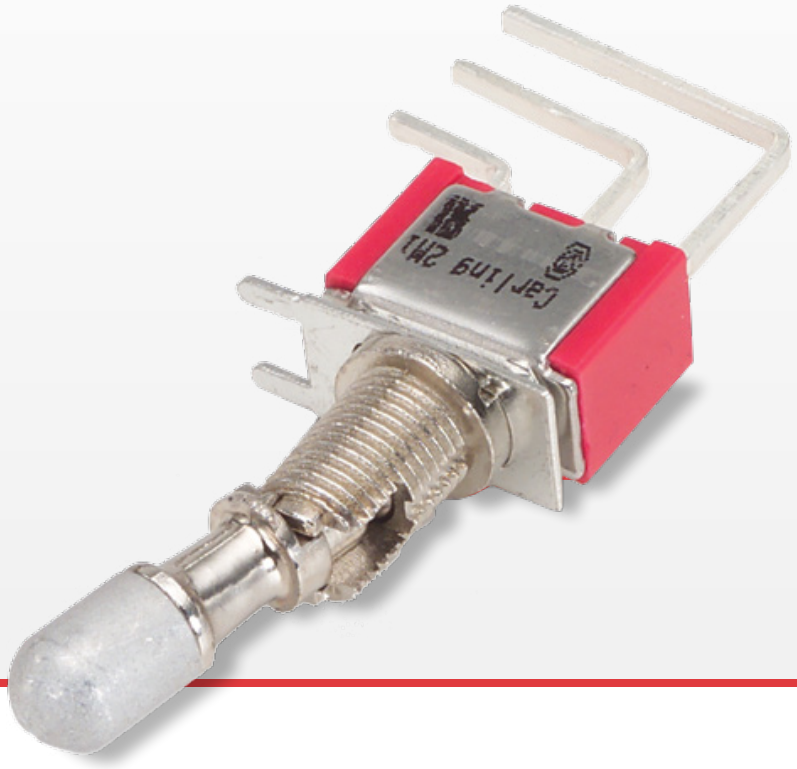
Littelfuse® | Carling Technologies®
A Littelfuse® Brand

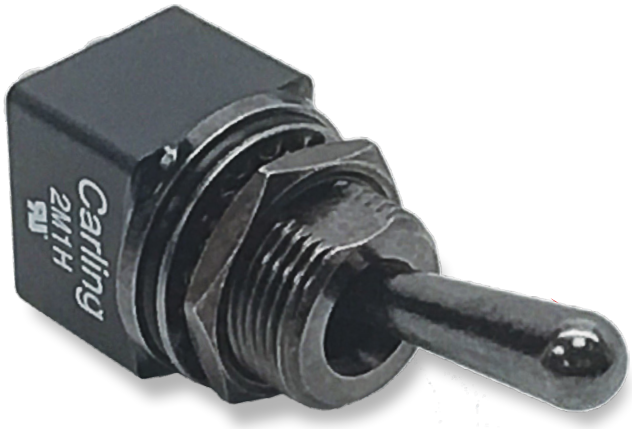
2M-Series

Miniature Toggles Switches

PRODUCT WEBPAGE

request sample, configure part





The 2M family of miniature toggle switches is composed of three switch series; the 2M1-Series miniature toggle switch, the 2MS-Series sealed miniature toggle switch, and the 2M1H-Series premium sealed miniature toggle switch. These series all feature PC mounting and offer a variety of ratings, circuits, contact materials, terminal platings, toggle styles and lengths, and optional color caps.

1-2	.4-5	125, 250	28
Poles	Amps	VAC	VDC

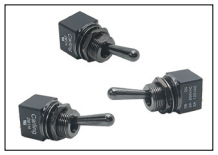
Typical Applications

- Instrumentation
- Telecommunications
- Networking
- Medical Equipment

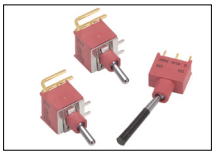
www.carlingtech.com 860.793.9281 sales@carlingtech.com

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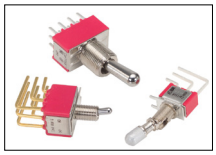
Tech Specs



2M1H-Series
Premium Sealed
Miniature
Toggle Switch



2MS-Series
Sealed
Miniature
Toggle Switch



2M1-Series
Miniature
Toggle Switch

Electrical

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

Physical

Operating Temperature	-30°C to +85°C
Index of Protection	2M1H-Series: IP67 2MS-Series: IP67
Solder Heat Resistance	MIL-STD-202, Method 210
Actuator Travel	25°

Material

Case	2M1H-Series & 2M1-Series: Dially phthalate (DAP) (UL 94V-0) 2MS-Series: Glass filled nylon 6/6,flame retardant, heat stabilized (UL 94V-0)
Toggle	2M1H-Series: Brass, black finish with o-ring seal 2MS-Series: Brass, chrome plated, internal o-ring sealed 2M1-Series: Brass, chrome plated
Bushing	2M1H-Series: Brass, black finish with o-ring seal 2MS-Series: Glass filled nylon 6/6,flame retardant, heat stabilized (UL 94V-0) 2M1-Series: Brass, nickel plated
Housing	Stainless Steel
Bracket	2MS-Series: Nylon (UL 94V-0) 2M1-Series: Stainless Steel
Actuator Retainer	2MS-Series: Stainless Steel
Switch Support	Brass, tin plated
Terminal Seal	Epoxy

Ordering Scheme

Sample Part Number: 2M1H - DP1 TJ - BK - M2 R E

Selection: 1 2 3 4 5 6 7

1. SERIES

2M1H Premium Sealed Miniature Toggle Switch

2. POLES / CIRCUIT

( ) - momentary

Position:	1 2-3, 5-6	2 Connected Terminals	3 2-1, 5-4
SP1	ON	NONE	ON
SP2	ON	NONE	(ON)
SP3	ON	OFF	ON
SP4	(ON)	OFF	(ON)
SP5	ON	OFF	(ON)
DP1	ON	NONE	ON
DP2	ON	NONE	(ON)
DP3	ON	OFF	ON
DP4	(ON)	OFF	(ON)
DP5	ON	OFF	(ON)
DP6 *	ON	ON	ON
DP7 *	(ON)	ON	(ON)
DP8 *	ON	ON	(ON)

*Center position connects 2-3, 5-4

3. ACTUATOR STYLE

TJ .709" [18 mm] length **TK** .512" [13.00 mm] length

4. BUSHING

BK .386" [9.80 mm] threaded, flat

5. TERMINATION [7]

M1	Solder Lug	**M51**	Wire Wrap, .750" [19.05mm] length
M2	PCB	**M52**	Wire Wrap, .964" [24.48mm] length
M3	Quick Connect	**M53**	Wire Wrap, .425" [10.80mm] length
		M54	Wire Wrap, 1.062" [25.97mm] length

6. CONTACTS / TERMINALS

	Contact Material	Terminal Plating	Rating	Approvals
G	silver [1]	gold over silver	5A 125VAC or 28VDC, 2A 250VAC	cULus, IP67
K	gold [2,5]	tin [4,7]	0.4VA max 20V max (AC/DC)	IP67
P	silver [1,6]	tin [4,7]	5A 125VAC or 28VDC, 2A 250VAC	cULus, IP67
Q	silver [1] silver [1]	5A 2A	125VAC or 28VDC, 250VAC	cULus, IP67
R	gold [2] gold [3]	0.4VA max	20V max (AC/DC)	IP67

7. EPOXY SEAL

E Epoxy Seal

Notes: Switches supplied with (1) 2M1-HDW4 hex nut and (1) 3MNH-WCP-0872 O-Ring
1 Movable contact and terminal platings: silver over copper alloy
2 Movable contact and terminal platings: gold over nickel over copper alloy
3 Terminal platings: gold over nickel over copper alloy
4 Terminal platings: tin over copper alloy
5 Terminal contact platings: gold over nickel alloy
6 Terminal contact platings: silver over nickel alloy
7 Tin option not available with M1 & M3 terminations.

Configure Complete Part Number > | Browse Standard Parts >

*Manufacturer reserves the right to change product specification without prior notice.

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Ordering Scheme

Sample Part Number: 2MS - WSP 1 - T1 - B4 - M1 G E

Selection: 1 2 3 4 5 6 7 8

1. SERIES

2MS Sealed Miniature Toggle Switch

2. POLES

WSP Single pole - uses terminals 1, 2 & 3
WDP Double pole - uses terminals 1, 2, 3, 4, 5 & 6
W3P Three pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 9

3. CIRCUIT

( ) - momentary

Position:	1 2-3, 5-6	2 Connected Terminals	3 2-1, 5-4
1	ON	NONE	ON
2	ON	NONE	(ON)
3	ON	OFF	ON
4	(ON)	OFF	(ON)
5	ON	OFF	(ON)

4. ACTUATOR STYLE

T1 Round Bat
T2 Round Short Bat
T9 Long Black Plastic .492" length
P1 Plastic Anti-Static .496" length
P2 Plastic Anti-Static .299" length

5. BUSHING

B1 Threaded, Keyway
B4 Unthreaded, Short, Keyway, Flat

Notes:
B1 Bushing switches supplied with (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer and (1) 2M1-HDWI5 locking ring.
1 Movable contact & terminal platings: silver over copper alloy
2 Movable contact & terminal platings: gold over nickel over copper alloy
3 Terminal platings: tin over nickel over copper alloy
4 Tin option not available with M1 terminal

6. TERMINATION

M1 [4] Solder Lug
M2 PCB
M3 Quick Connect
M51 Wire Wrap, .750" [19.05mm]
M52 Wire Wrap, .964" [24.48mm]
M53 Wire Wrap, .425" [10.80mm]
M54 Wire Wrap, 1.062" [25.97mm]
M6 Right Angle, PC Thru-Hole
M61 Right Angle, Snap-In
M7 Vertical, Right Angle, PC Thru-Hole
M71 Vertical, Right Angle, Snap-In
VS2 Vertical, .461" [11.70mm]
VS21 Vertical, Snap-In, .460" [11.70mm]
VS3 Vertical, .630" [16mm]
VS31 Vertical, Snap-In, .630" [16mm]
U2 Vertical, .551" [14mm] - only 3PDT
VS4 Vertical, .461" [11.70mm]
VS41 Vertical, Snap-In, .461" [11.70mm]
U4 Vertical, .551" [14mm] - only 3PDT
VS5 Vertical, .630" [16mm]
VS51 Vertical, Snap-In, .630" [16mm

7. CONTACTS / TERMINALS

Contact Material	Terminal Plating	Rating	Approvals
G silver [1]	gold over silver	5A 125VAC or 28VDC, 2A 250VAC	cULus, IP67
K gold [2]	tin [3, 4]	0.4VA max 20V max (AC/DC)	IP67
P silver [1]	tin [3, 4]	5A 125VAC or 28VDC, 2A 250VAC	cULus, IP67
R gold [2]	gold [2]	0.4VA max 20V max (AC/DC)	IP67

8. EPOXY SEAL

E Epoxy Seal
0 without Epoxy Seal

Configure Complete Part Number > | Browse Standard Parts >

Sample Part Number: 2M1 - SP 1 - T1 - B1 - M1 Q E

Selection: 1 2 3 4 5 6 7 8

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 & 12

3. CIRCUIT

( ) - momentary

Position:	1 2-3, 5-6, 8-9, 11-12	2 Connected Terminals	3 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
7*	(ON)	ON	(ON)
8*	ON	ON	(ON)

*Available with DP and 4P switches only. Center position connects 2-3, 5-4, 8-9, 11-10

4. ACTUATOR STYLE

T1 Round Bat
T2 Round Short Bat
T3 Paddle
T4 Medium Paddle
TA Locking Lever
T5 Long Paddle
T6 Flat (B1,B2,B5,BA,BB,BE)
T7 Large Bat (B0 bushing)
T8 X-Large Bat (B0 bushing)
T9 Black Plastic
T0 Rectangular
TA Locking Lever
TI Locking Lever
TL Locking Lever

Notes: B1 Bushing switches supplied with (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer and (1) 2M1-HDWI5 locking ring.
1 Movable contact & terminal platings: silver over copper alloy
2 Movable contact & terminal platings: gold over nickel over copper alloy
3 Terminal platings: tin over nickel over copper alloy
4 Tin option not available with M1 terminal Movable contact & terminal platings: silver over copper alloy
5 Movable contact & terminal platings: gold over nickel over copper alloy
6 Terminal platings: tin over nickel over copper alloy
7 Tin option not available with M1 terminal

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
B8 Metric
B9 Splashproof
B0 15/32" Threaded (Standard for T7 & T8 actuator styles)
BA Threaded for T6
BA Threaded for T6
BB Non-Threaded for `T6
BE Threaded Hi Torque for T6
BL Threaded, Locking

6. TERMINATION

M1 [4] Solder Lug
M2 PCB
M3 Quick Connect
M51 Wire Wrap, .750" [19.05mm]
M52 Wire Wrap, .964" [24.48mm]
M53 Wire Wrap, .425" [10.80mm]
M54 Wire Wrap, 1.062" [25.97mm]
M6 Right Angle, PC Thru-Hole
M61 Right Angle, Snap-In
M7 Vertical, Right Angle, PC Thru-Hole
M71 Vertical, Right Angle, Snap-In
VS2 Vertical, .461" [11.70mm]
VS21 Vertical, Snap-In, .460" [11.70mm]
VS3 Vertical, .630" [16mm]
VS31 Vertical, Snap-In, .630" [16mm]
U2 Vertical, .551" [14mm] - only 3PDT
VS4 Vertical, .461" [11.70mm]
VS41 Vertical, Snap-In, .461" [11.70mm]
U4 Vertical, .551" [14mm] - only 3PDT
VS5 Vertical, .630" [16mm]
VS51 Vertical, Snap-In, .630" [16mm]

7. CONTACTS / TERMINALS

Contact Material	Terminal Plating	Rating	Approvals
G silver [1]	gold over silver	5A 125VAC or 28VDC, 2A 250VAC	UL, CSA, IP67
K gold [2]	tin [3, 4]	0.4VA max 20V max (AC/DC)	N/A
P silver [1]	tin [3, 4]	5A 125VAC or 28VDC, 2A 250VAC	UL, CSA, IP67
Q silver [1]	silver [1]	5A 125VAC or 28VDC, 2A 250VAC	UL, CSA, IP67
R gold [2]	gold [2]	0.4VA max 20V max (AC/DC)	N/A

8. EPOXY SEAL

E Epoxy Seal
0 without Epoxy Seal

Configure Complete Part Number > | Browse Standard Parts >

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Ordering Scheme Accessories

2M-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-T12 ASSEMBLED. To order accessories in bulk, specify the Series, followed by the accessory. Ex: 2M1-T12. See page 76 for dimensional specifications.

Optional Toggle Cap

Sample Part Number	2M1	-	T1	2	
Selection	1		2	3	

1. SERIES

2M1	Fits 2M1H, 2MS or 2M1

2. TOGGLE CAP SIZE

T1	10.6 mm	**T2**	7.6 mm

3. CAP COLOR

1	White	5	Yellow
2	Black	6	Green
3	Red	7	Blue

Optional Dress and Knurled Nuts

Sample Part Number	2M1	-	HDW3
Selection	1		2

1. SERIES

2M1	Fits 2M1H, 2MS or 2M1

2. NUT

HDW3	Dress nut for 1/4" bushing
HDW5	Knurled nut for 15/32" bushing (2M1-Series only)

Optional Rubber Seals

Sample Part Number	2M1	-	E1A
Selection	1		2

1. SERIES

2M1	Fits 2M1H, 2MS or 2M1

2. RUBBER BOOT SEAL

E1A	1/4 - 40" UNS bushing (Not available for B0 bushing option)
K1	Metric M6 bushing (B8 bushing only)
YE1D	15/32 - 32" UNS bushing (TJ, TK and B0 bushings only)
YE1E	15/32 - 32" UNS bushing 1/2 boot (T7, T8, TJ, TK and B0 bushings only)

Sample Part Number	3MNH	-	WCP-0872
Selection	1		2

1. SERIES

3MNH	Fits 3MNH or 2M1H

2. RUBBER O-RING

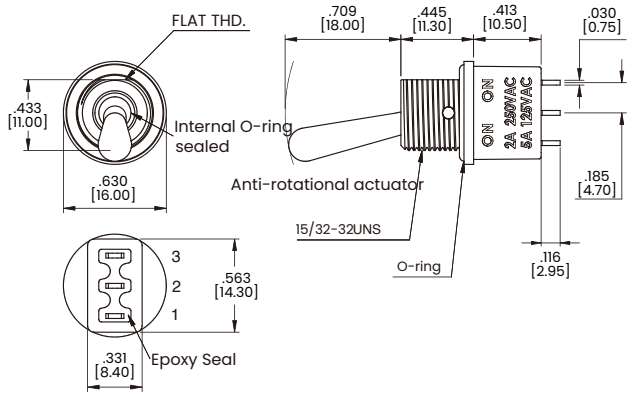
WCP-0872	For 15/32 bushing option

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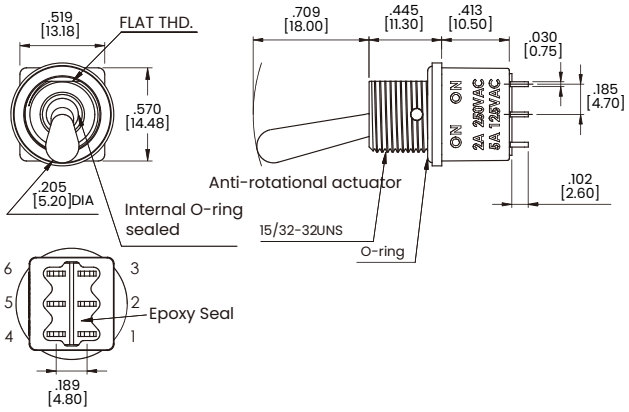
Dimensional Specs

inches [millimeters]

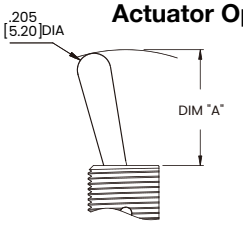
Single Pole



Double Pole

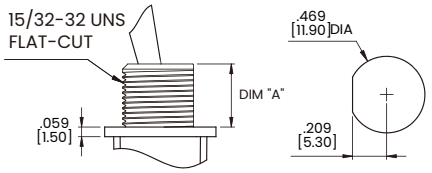


Actuator Options



OPTION CODE	DIM. "A"
TJ	.709 [18.00]
TK	.512 [13.00]

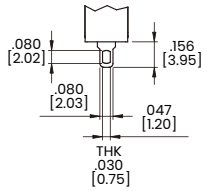
Bushing Options & Mounting



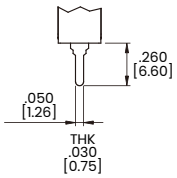
OPTION CODE	DIM. "A"
BK	.386 [9.80]

Termination Options

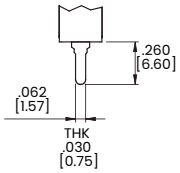
M1 Standard Solder Lug



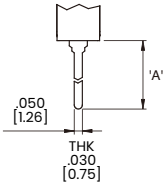
M2 PC Thru-Hole



M3 Quick Connect



M5 Wire Wrap



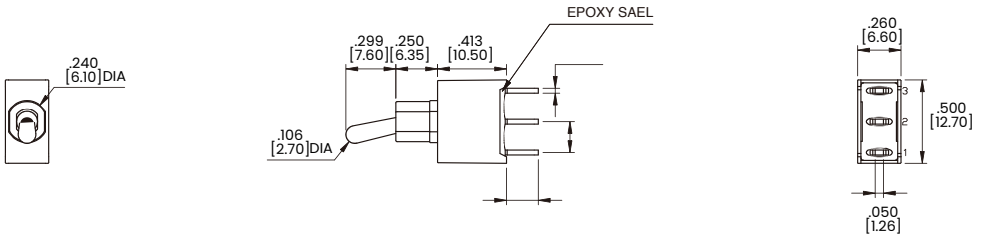
OPTION CODE	DIM.'A'
M5-1	.750 [19.05]
M5-2	.964 [24.48]
M5-3	.425 [10.80]
M5-4	1.062 [26.97]

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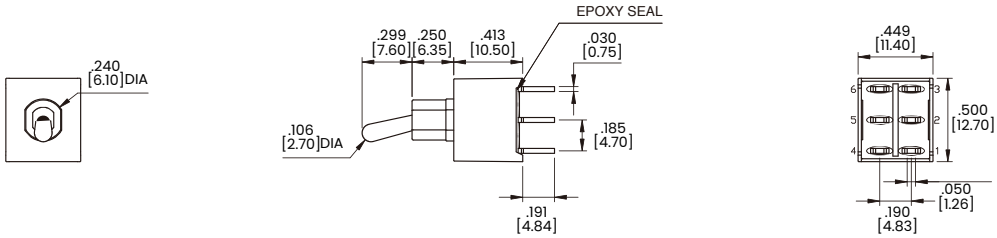
Dimensional Specs

inches [millimeters]

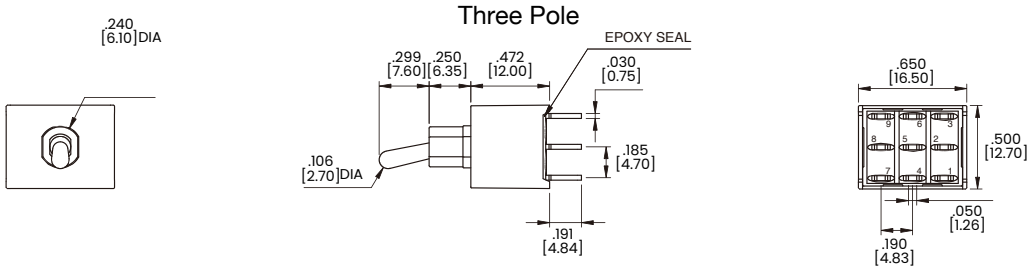
Single Pole



Double Pole

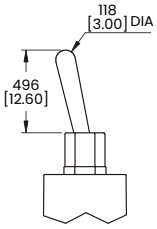


Three Pole

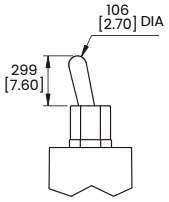


Actuator Options

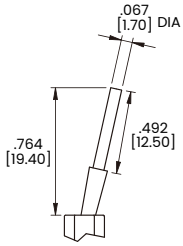
T1



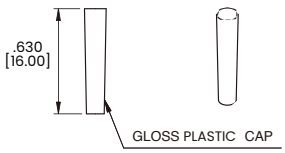
T2



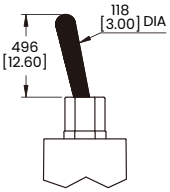
T9 with Plastic Cap



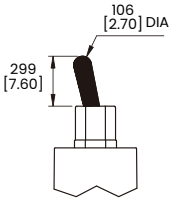
NO.	COLOR
1	White
2	Black(std.)
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
8	Brown
9	Gray



P1 Plastic Toggle



P2 Plastic Toggle



* Shown with B4 bushing. Subtract 0.75" (1.90mm) from actuator height for B1 bushing.

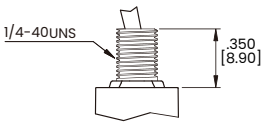
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Dimensional Specs

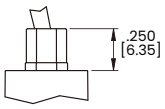
inches [millimeters]

Bushing Options

B1

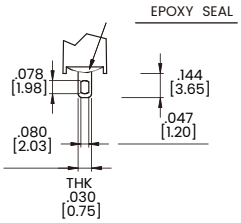


B4

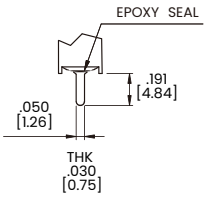


Termination Options

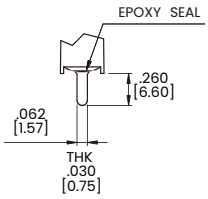
M1 Standard Solder Lug



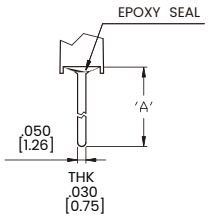
M2 PC Thru-Hole



M3 Quick Connect

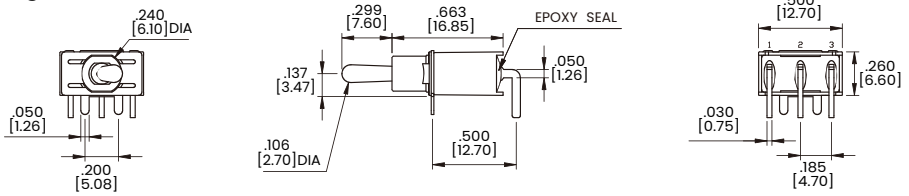


M5 Wire Wrap

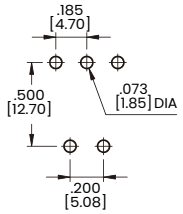


OPTION CODE	DIM.'A'
M5-1	.750 [19.05]
M5-2	.964 [24.48]
M5-3	.425 [10.80]
M5-4	1.062 [26.97]

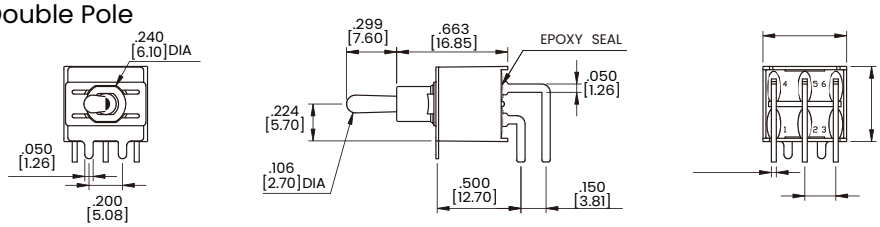
M6 Single Pole



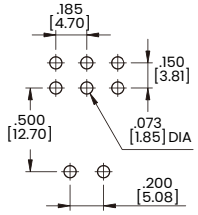
P.C.MOUNTING



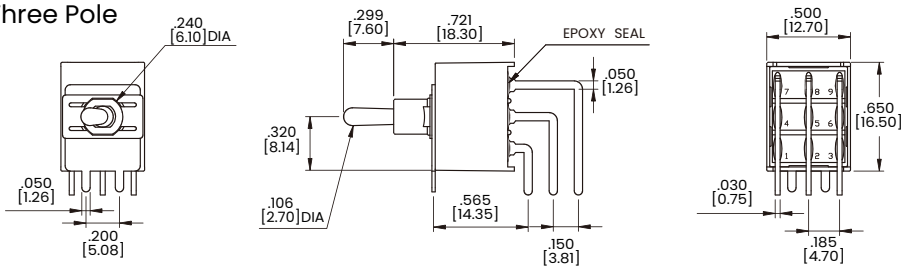
M6Double Pole



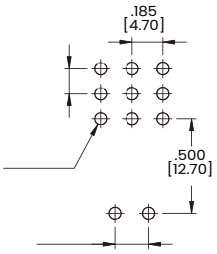
P.C.MOUNTING



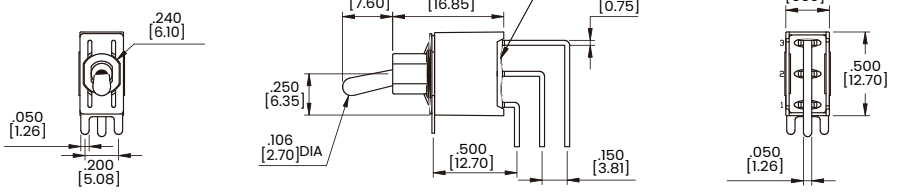
M6 Three Pole



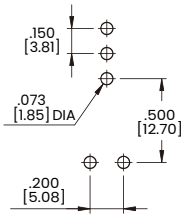
P.C.MOUNTING



M7 Single Pole



P.C.MOUNTING



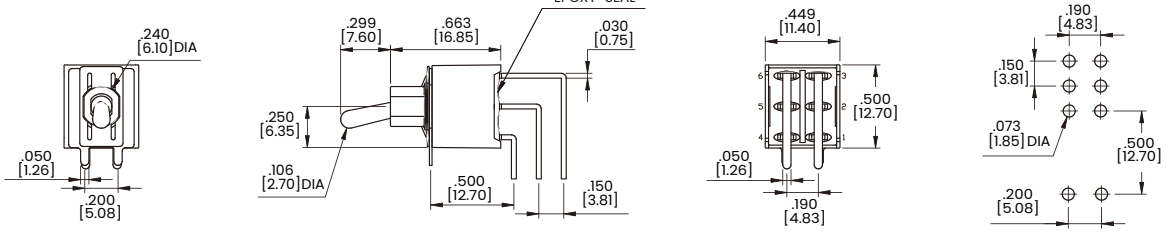
Downloaded from Arrow.com.

Dimensional Specs

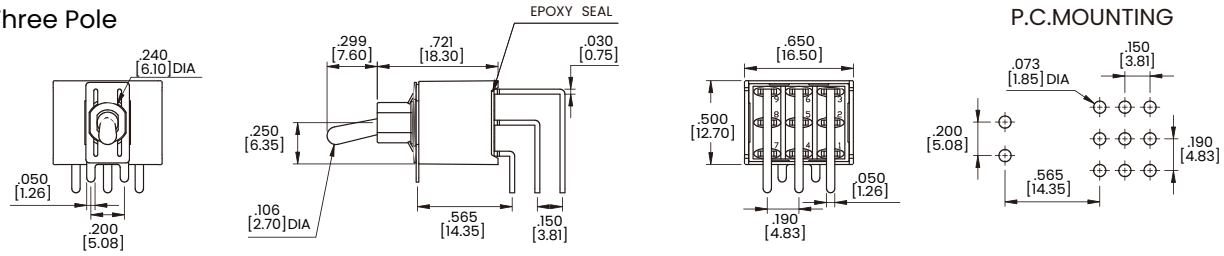
inches [millimeters]

Termination Options

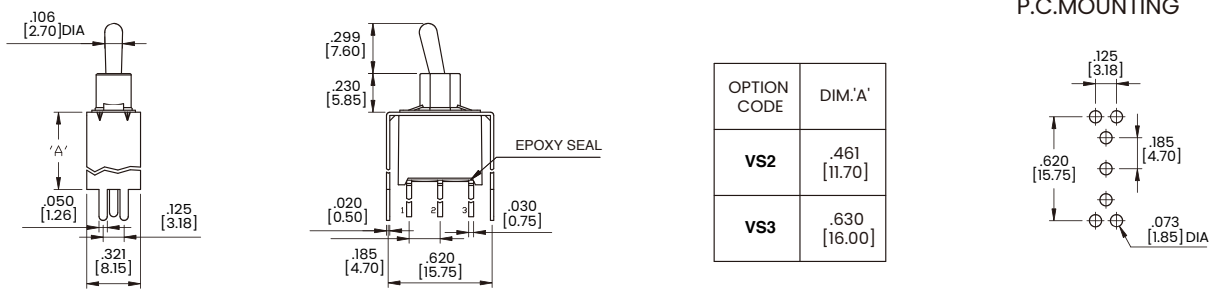
M7 Double Pole



M7 Three Pole

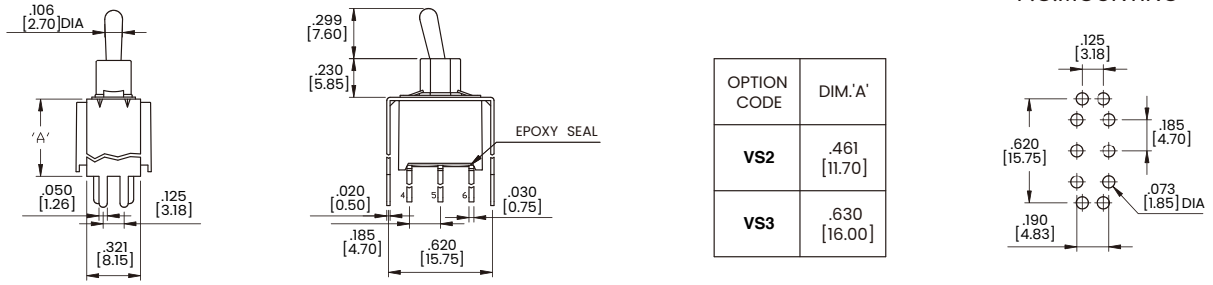


VS2-VS3 Single Pole



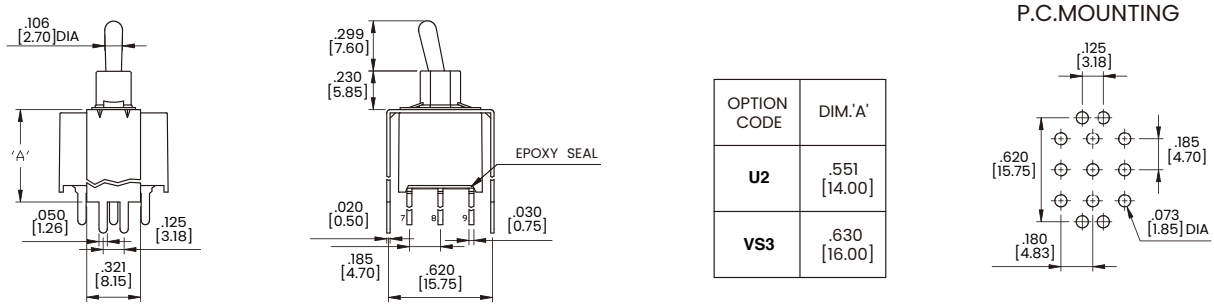
OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

VS2-VS3 Double Pole



OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

U2-VS3 Three Pole



OPTION CODE	DIM.'A'
U2	.551 [14.00]
VS3	.630 [16.00]

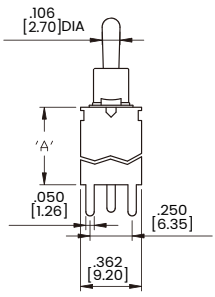
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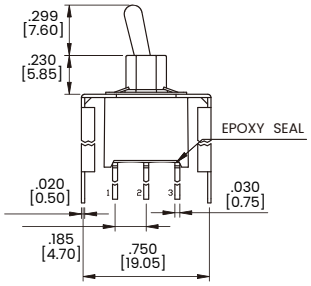
Dimensional Specs

inches [millimeters]

Termination Options

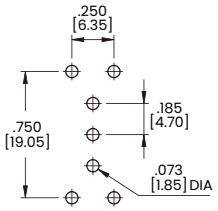
VS4-VS5 Single Pole



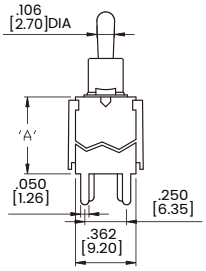


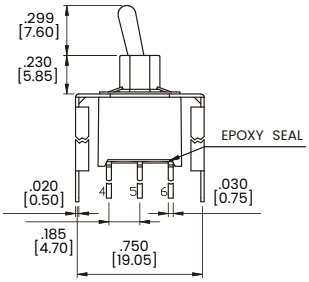
OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

P.C.MOUNTING



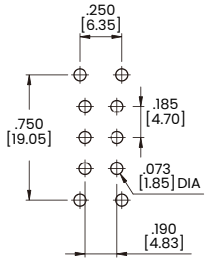
VS4-VS5 Double Pole



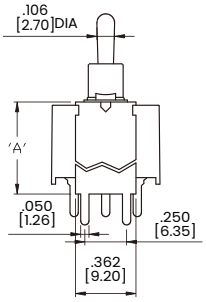


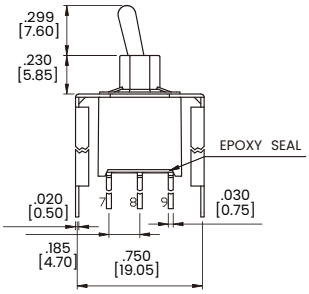
OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

P.C.MOUNTING



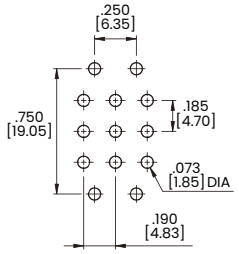
U4-VS5 Three Pole





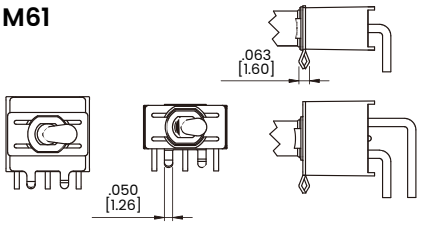
OPTION CODE	DIM.'A'
U4	.551 [14.00]
VS5	.630 [16.00]

P.C.MOUNTING

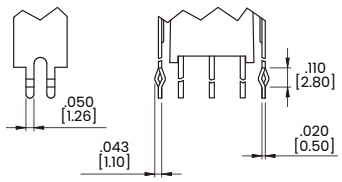


Snap-In Termination Options

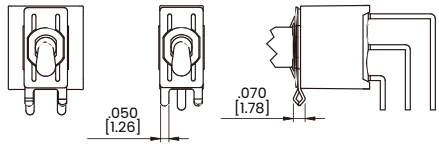
M61



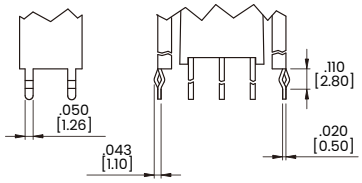
VS21, VS31



M71



VS41, VS51



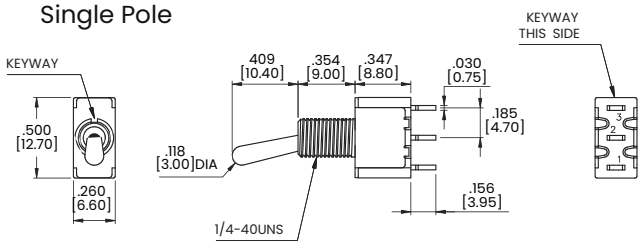
* PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.

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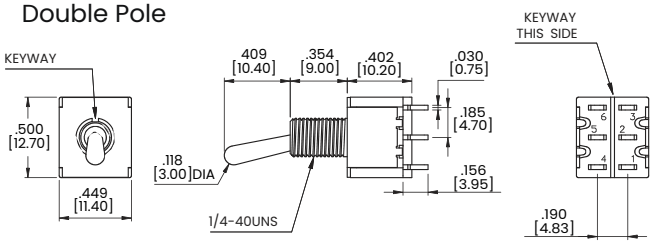
Dimensional Specs

inches [millimeters]

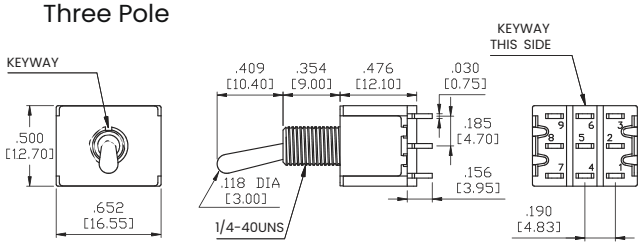
Single Pole



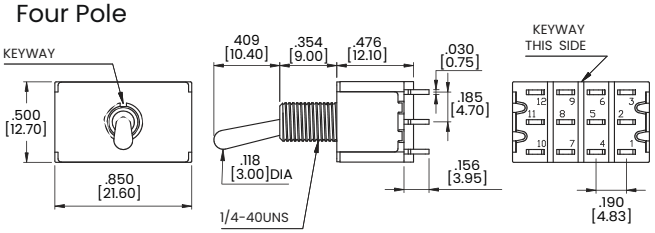
Double Pole



Three Pole

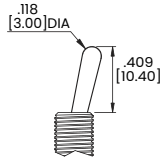


Four Pole

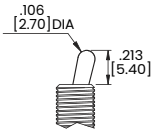


Actuator Options for Panel Rear Mount

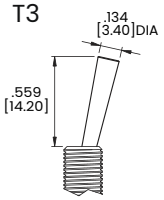
T1



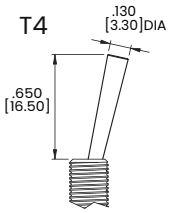
T2



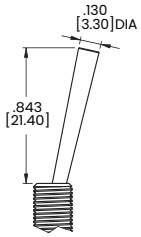
T3



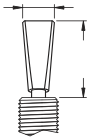
T4



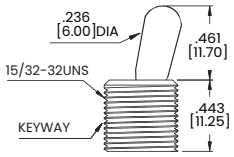
T5



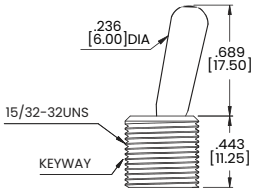
T6



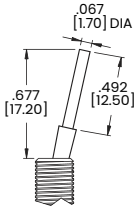
T7 P7 Anti-Rotation



T8 P8 Anti-Rotation

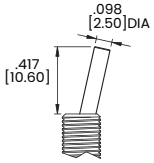


T9 Plastic



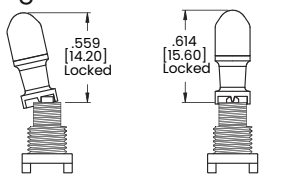
NO.	COLOR
1	White
2	Black(std.)
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
8	Brown
9	Gray

T0

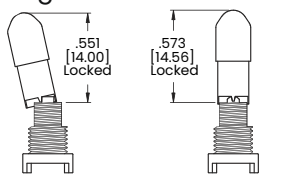


* T6 actuator is available with B1, B2, B5, B6, BA, BB & BE bushing. Actuator length shown for T1-T5,T9 and T10 is with B1 bushing. T7, P7, P8 does not require a bushing code.

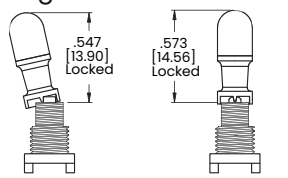
Locking Lever TA



Locking Lever TI

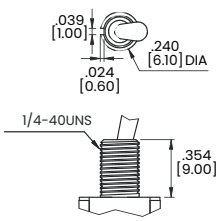


Locking Lever TL

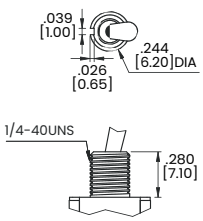


Bushing Options

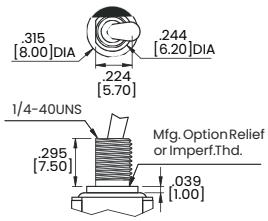
B1 Threaded B2 Non-Threaded



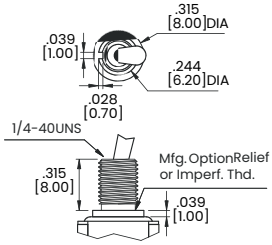
B3 Threaded B4 Non-Threaded



B5 High Torque



B6 High Torque

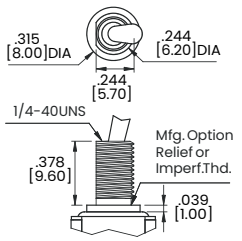


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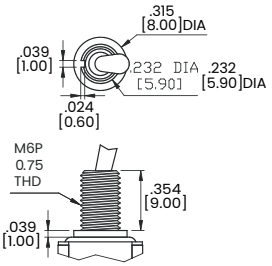
Dimensional Specs

inches [millimeters]

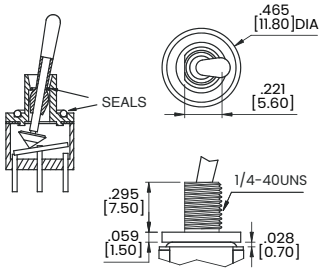
B7 Long



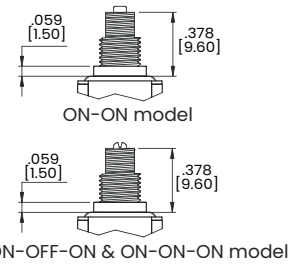
B8 Metric



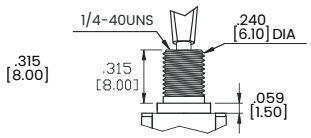
B9 Splash-Proof



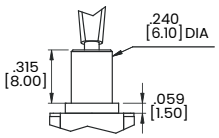
BL Locking Lever



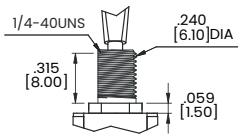
BA Threaded for T6



BB Non-Threaded for T6

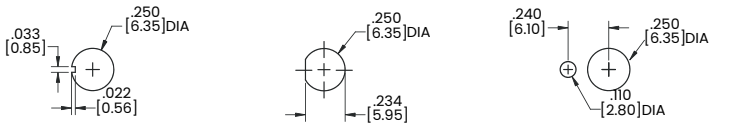


BB High Torque for T6

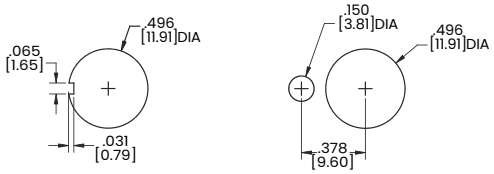


Panel Mounting

1/4 INCH BUSHING

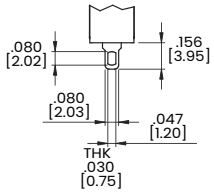


15/32 INCH BUSHING

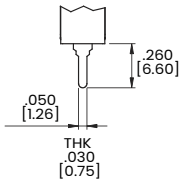


Termination Options

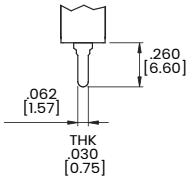
M1 Standard Solder Lug



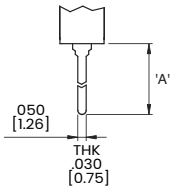
M2 PC Thru-Hole



M3 Quick Connect

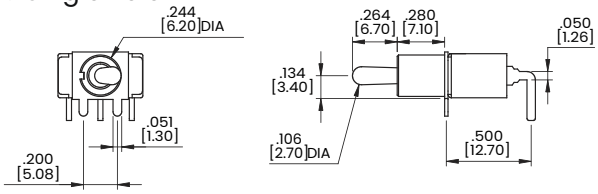


M5 Wire Wrap

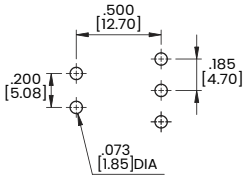


OPTION CODE	DIM.'A'
M5-1	.750 [19.05]
M5-2	.964 [24.48]
M5-3	.425 [10.80]
M5-4	1.062 [26.97]

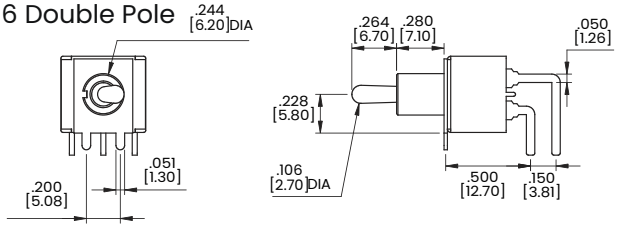
M6 Single Pole



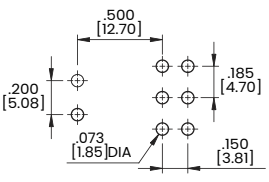
P.C.MOUNTING



M6 Double Pole



P.C.MOUNTING



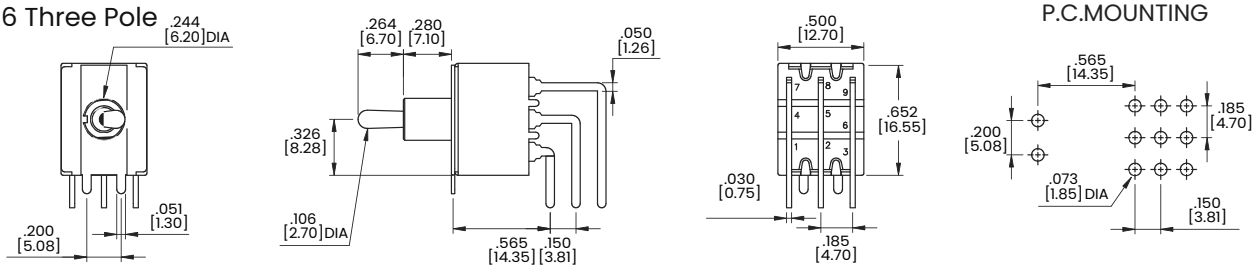
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Dimensional Specs

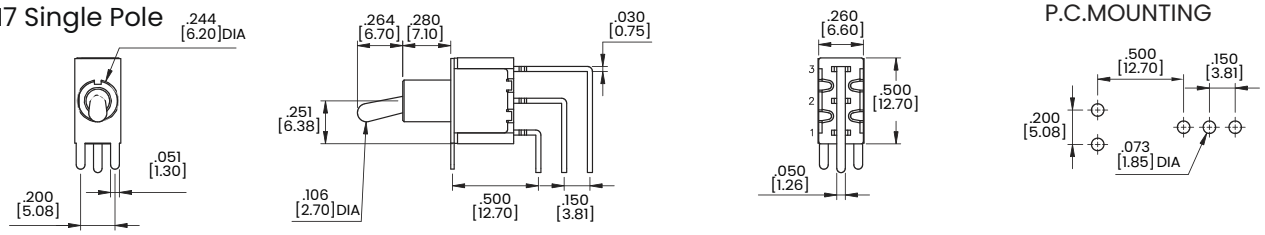
inches [millimeters]

Termination Options

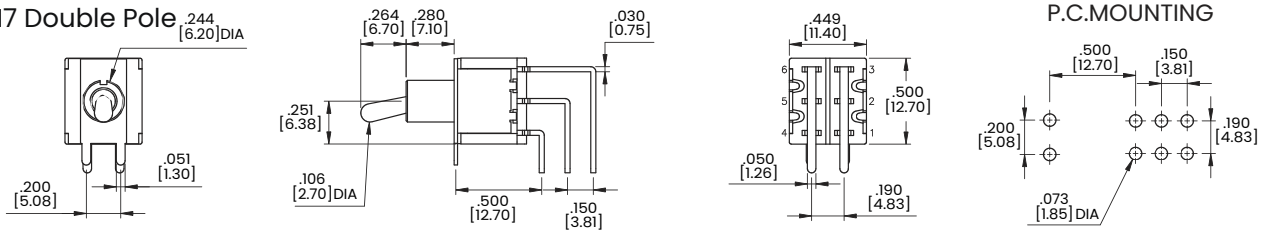
M6 Three Pole



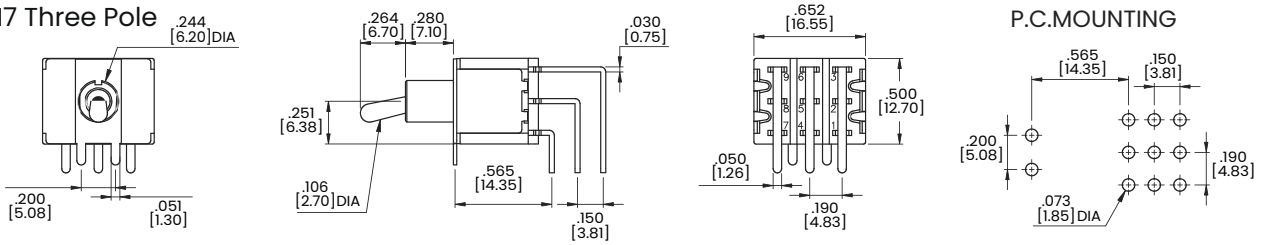
M7 Single Pole



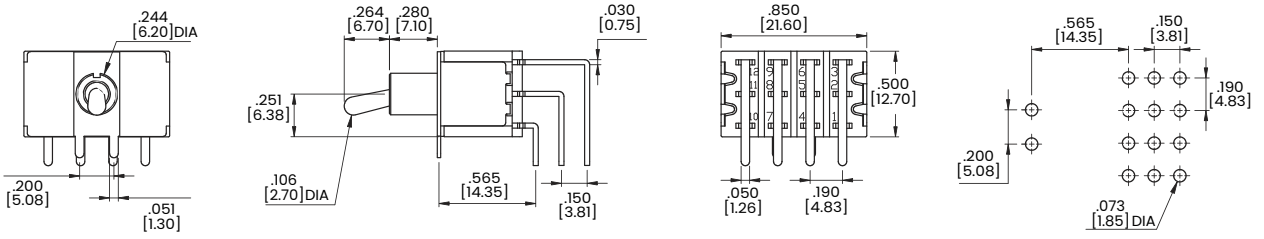
M7 Double Pole



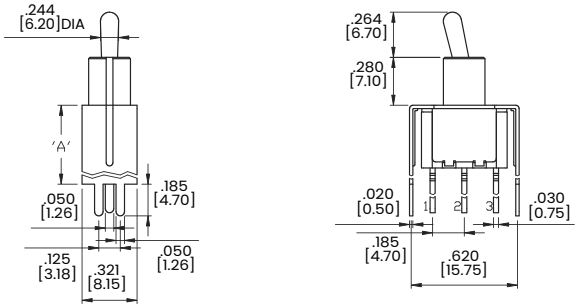
M7 Three Pole



M7 Four Pole

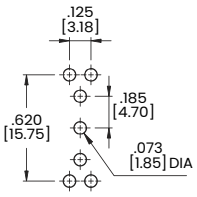


VS2-VS3 Single Pole



OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

P.C.MOUNTING



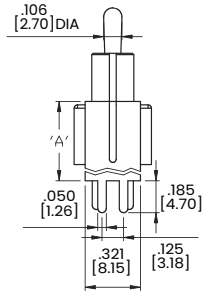
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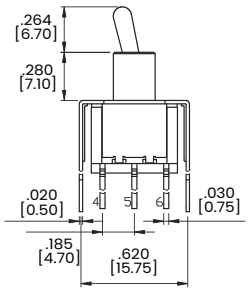
Dimensional Specs

inches [millimeters]

Termination Options

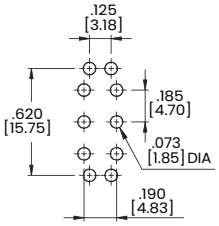
VS2-VS3 Double Pole



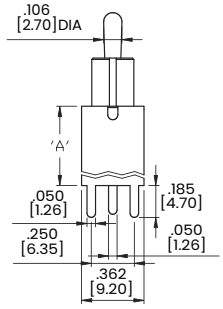


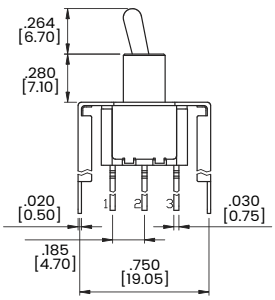
OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

P.C.MOUNTING



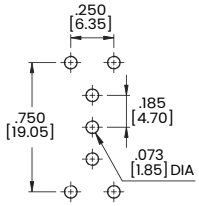
VS4-VS5 Single Pole



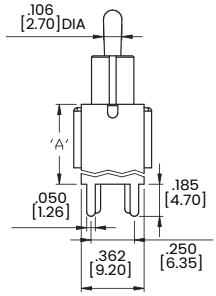


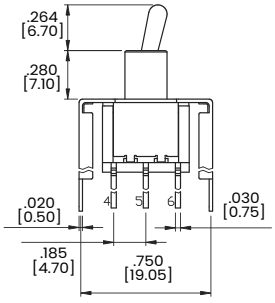
OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

P.C.MOUNTING



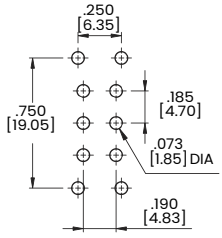
VS4-VS5 Double Pole





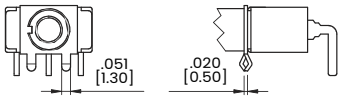
OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

P.C.MOUNTING

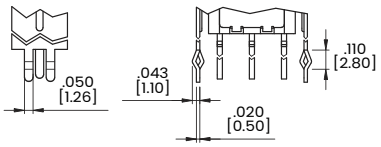


Snap-In Termination Options

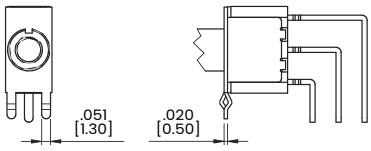
M61 (available with SP & DP)



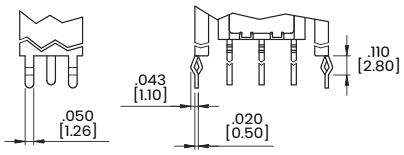
VS21, VS31



M71 (available with SP & DP)



VS41, VS51



* PC Mounting for M61,M71,VS21,VS31,VS41,VS5 1 refer to M6,M7,VS2,VS3,VS4,VS5 respectively.

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