



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 2MI-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.

VAC



.4-5 Amps



Typical Applications

- Instrumentation
- Telecommunications
- Networking Medical
- Military
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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) 2MI-Series: Stainless Steel
Actuator Retainer	2MS-Series: Stainless Steel
Switch Support	Brass, tin plated
Terminal Seal	Ероху

Ordering Scheme וחח Т

Sample Part Number	2M1	-	-	D	P1	TJ	_
Selection	1			2	2	3	
1. SERIES 2M1H Pr 2. POLES	emium Sealed	Miniatu	re Toggle	Switch			
() - mome Position: SP1 SP2 SP3 SP4 SP5 DP1 DP2 DP3 DP4 DP5 DP6 * DP7 * DP8 *		2 Coni NON OFF OFF OFF OFF OFF OFF OFF ON ON	Ē	erminals	3 2-1, 5-4 ON (ON) (ON) (ON) (ON) (ON) (ON) (ON) (

.512" [13.00 mm] length

*Center position connects 2-3, 5-4 **3. ACTUATOR STYLE**

ТJ .709" [18 mm] length ΤК

4. BUSHING

BK .386" [9.80 mm] threaded, flat

BK - M2 R E 4 6 5 7 5. TERMINATION Wire Wrap, .750" [19.05mm] length Wire Wrap, .964" [24.48mm] length Wire Wrap, .425" [10.80mm] length Wire Wrap, 1.062" [25.97mm] length M1 Solder Lug M51 M2 PCB M52 M3 Quick Connect M53 M54 6. CONTACTS / TERMINALS Contact Material Terminal Plating Rating Approvals gold over silver 5A 125VAC or 28VDC, 9U IP67 silver¹ G 2A 250VAC tin ^{4,7} gold 2,5 0.4VA max 20V max (AC/DC) IP67 κ silver 1,6 tin 4,7 5A 125VAC or 28VDC, **RL**, IP67 2A 250VAC silver¹ silver¹ 125VAC or 28VDC, Q 5A **91** IP67 250VAC 2A gold² gold³ 0.4VA max 20V max (AC/DC) R 7. EPOXY SEAL Ε Epoxy Seal

 Notes: Switches supplied with (1) 2MI-HDW4 hex nut and (1) 3MNH-WCP-0872 O-Ring

 Movable contact and terminal platings: silver over copper alloy

 Movable contact and terminal platings: gold over nickel over copper alloy

 Terminal platings: gold over nickel over copper alloy

 Terminal platings: gold over nickel alloy

 Terminal platings: gold over nickel alloy

 Terminal contact platings: gold over nickel alloy

 Terminal contact platings: silver over nickel alloy

 Terminal contact platings: wher over nickel alloy

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IP67

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

Ordering Scheme	
Sample Part Number 2MS - WSP 1 -	ti – B4 – Mige
Selection 1 2 3	4 5 6 7 8
SERIES 2MS Sealed Miniature Toggle Switch	6. TERMINATION MI ⁴ Solder Lug VS21 Vertical, Snap-In, .460"
2. POLES	M2 PCB [11.70mm] M3 Quick Connect VS3 Vertical, .630" [16mm]
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	M51 Wire Wrap, .750" [19.05mm] VS31 Vertical, Snap-In, .630" [16mm] M52 Wire Wrap, .964" [24.48mm] U2 Vertical, .551" [14mm] - only 3PDT M53 Wire Wrap, .425" [10.80mm] only 3PDT M54 Wire Wrap, 1.062" [25.97mm] VS4 Vertical, .461" [11.70mm] M6 Right Angle, PC Thru-Hole VS41
3. CIRCUIT	M61 Right Angle, Snap-In [11.70mm] M7 Vertical, Right Angle, U4 Vertical, 551" [14mm] -
() - momentary Position: 1 2 3 2-3, 5-6 Connected Terminals 2-1, 5-4 1 ON NONE ON 2 ON NONE (ON)	PC Thru-Hôle only 3PDT M71 Vertical, Right Angle, Snap-In VS2 Vertical, .461" [11.70mm] VS5 Vertical, Snap-In, .630" [16mm]
Z ON NOINE ON 3 ON OFF ON 4 (ON) OFF (ON)	7. CONTACTS / TERMINALS
5 ÒN Ó OFF (ON)	Contact Material Terminal Plating Rating Approvals G silver ¹ gold over silver 5A 125VAC or 28VDC, 2004 Just IP67
4. ACTUATOR STYLE T1 Round Bat P1 Plastic Anti-Static .496" length	2A 250VAC K gold ² tin ^{3,4} 0.4VA max 20V max (Ac/DC) IP67
T2 Round Short Bat P2 Plastic Anti-Static .299" length T9 Long Black Plastic .492" length	P silver 1 tin 3,4 5A 125VAC or 28VDC, 2000 cm cm lp67 2A 250VAC 250VAC 250VAC cm lp67 <
5. BUSHING	
B1 Threaded, Keyway B4 Unthreaded, Short, Keyway, Flat	8. EPOXY SEAL E Epoxy Seal 0 without Epoxy Seal
Notes: BJ Bushing switches supplied with (2) 2M1-HDW2 nuts, (1) 2M1-HDW1 washer and BJ Bushing switches supplied with (2) 2M1-HDW2 nuts, (1) 2M1-HDW1 washer and (1) 2M1-HDW15 locking ring. See page 76-77. Movable contact & terminal platings: silver over copper alloy Movable contact & terminal platings; sold over nickel over copper alloy Movable contact & terminal platings; gold over nickel over copper alloy Terminal platings; tin over nickel over copper alloy Tin option not available with MI terminal Movable contact & terminal	S Configure Complete Part Number > Srowse Standard Parts >
$\frac{\text{Sample}}{\text{Part Number}} \underline{2M1} - \underline{SP} \underline{1} - \underline{T}$	<u>1 - B1 - M1 Q E</u>
	$\frac{1}{5} - \frac{1}{6} - \frac{1}{7} + \frac{1}{8} + \frac{1}{8} = \frac{1}{1}$ 5. BUSHING
Part Number 2 IVII 5 F I I Selection 1 2 3 4 1. SERIES 2M1 Miniature Toggle Switch	5. BUSHING B1 Threaded Standard, keyway B2 Non-Threaded Standard, keyway B0 15/32" Threaded (Standard
Part Number 2 IVII 2 3 4	5. BUSHING B1 Threaded Standard, keyway B9 Splashproof
Part Number 2 IVII 5 J I I Selection 1 2 3 4 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	 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
Part Number ZIVII SP I I Selection 1 2 3 4 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	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 B1 Threaded for T6 B8 Metric B1 Threaded for T6 B8 Metric B1 Neraded, Locking B2 Vertical, Snap-In, .460" M1 ⁴ Solder Lug VS21 Vertical, Snap-In, .460" M2 PCB VS3 Vertical, .630" [16mm] M3 Quick Connect VS3 Vertical, .630" [16mm] M51 Wire Wrap, .964" [24.48mm] VS21 Vertical, .551" [14mm] - only 3PDT M54 Wire Wrap, .1062" [25.97mm] VS4 Vertical, .61461" [11.70mm] M54 Wire Wrap, .1062" [25.97mm] VS4 Vertical, .630" [16mm] M51 Right Angle, Snap-In VS4 Vertical, .551" [14mm] - only 3PDT M54 Vertical, Right Angle, Snap-In VS4 Vertical, .551" [14mm] - only 3PDT M57
Part Number $\angle IVII$ $\bigcirc SF$ I I Selection1234I.SERIES2M1 Miniature Toggle Switch2.POLESSP Single pole - uses terminals 1, 2, 3, 4, 5 & 63P Double pole - uses terminals 1, 2, 3, 4, 5 & 63P Three pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 94P Four pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 94P Four pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 94P Four pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 94P Four pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 94P Four pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 94P Four pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 & 123.CIRCUIT() - momentary Position: 1ON 2 ON 2 ON 3 ON 4 (ON)OFF 4 (ON) 5 ON 5 ON 5 ON 6* ON 6* ON 6* ON 7* (ON) 8* ON ONON 0 ON ON ON (ON)	5. BUSHING B1 Threaded Standard, keyway B2 Non-Threaded Standard, keyway B3 Threaded Short, keyway B4 Non-Threaded Short, keyway B4 Non-Threaded Short, keyway B4 Non-Threaded Short, keyway B4 Non-Threaded Short, keyway B5 High Torque, 8.0mm, keyway B6 High Torque, 8.0mm, keyway B7 Long threaded B8 Metric B8 Metric B1 Vireaded, Locking C ERMINATION M14 Solder Lug M2 PCB M3 Quick Connect M51 Wire Wrap, .964" [24.48mm] M53 Wire Wrap, .964" [24.48mm] M53 Wire Wrap, .1062" [25.97mm] M54 Wire Mrap, .964" [24.48mm] M51 Right Angle, S
Part Number 2 3 4 Selection 1 2 3 4 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 5 ON ON FF ON 5 ON OFF ON 5 ON OFF ON 6 * ON ON ON 6 * ON ON ON 7 * (ON) ON (ON) *Available with DP and 4P switches only. Center position connects 2-3, 5-4, 8-9, 11-10	5. BUSHING B1 Threaded Standard, keyway B2 Non-Threaded Standard, keyway B3 Threaded Short, keyway B4 Non-Threaded Short, keyway B4 Non-Threaded Short, keyway B4 Non-Threaded Short, keyway B4 High Torque, 7.5mm, flat B6 High Torque, 8.0mm, keyway B7 Long threaded B8 Metric B1 Neaded B4 Non-Threaded Short, keyway B7 Long threaded B8 Non-Threaded for T6 B8 Non-Threaded for T6 B8 Metric B1 Wire Wrap, 750° [19.05mm] M5 Wire Wrap, .964″ [24.48mm] M52 Wire Wrap, .964″ [24.48mm] M53 Wire Wrap, .964″ [24.48mm] M54 Wire Wrap, .964″ [24.48mm] M54 Wire Wrap, .964″ [24.48mm] M53 Wire Wrap, .964″ [24.48mm] M54 Wire Wrap, .964″ [24.97mm] M54 Wire Wrap, .964″ [24.97mm] M54 Wire Wrap, .1062″ [25.97mm] M54
Part Number $\angle IVII$ $\bigcirc SF$ I Selection1234I.SERIES2M1 Miniature Toggle Switch 2.POLES SPSingle pole - uses terminals 1, 2, 3, 4, 5 & 63PThree pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 94PFour pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 94PFour pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 & 12 3. 2-3, 5-6, 8-9, 11-12Connected Terminals 2-1, 5-4, 8-7, 11-101ON2ON2ON3ON4(ON)3ON4(ON)5ON6*ON7*(ON)8*ON0N1Round Bat7*Connected reposition connects 2-3, 5-4, 8-9, 11-10 ACTUATOR STYLE 1Round Bat1Round Bat17Large Bat (B0 bushing)12Round Bat13Paddle14Medium Paddle15Locking Lever14Medium Paddle15Locking Lever	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 B4 Non-Threaded for T6 B8 Metric B1 Threaded for T6 B8 Metric B1 Nereaded M14 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, .426" [11.70mm] M54 Wire Wrap, .426" [10.70mm] M54 Wire Wrap, .426" [10.70mm] M54 Wire Wrap, .426" [10.70mm] M55 Vertical, Right Angle, Snap-In <

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- silver over copper alloy Movable contact & terminal platings: gold over nickel over copper alloy Terminal platings: tin over nickel over copper alloy Tin option not available with M1 terminal
- 5 6 7

3.

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.

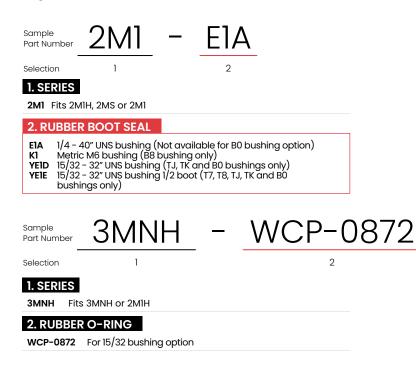
Optional Toggle Cap



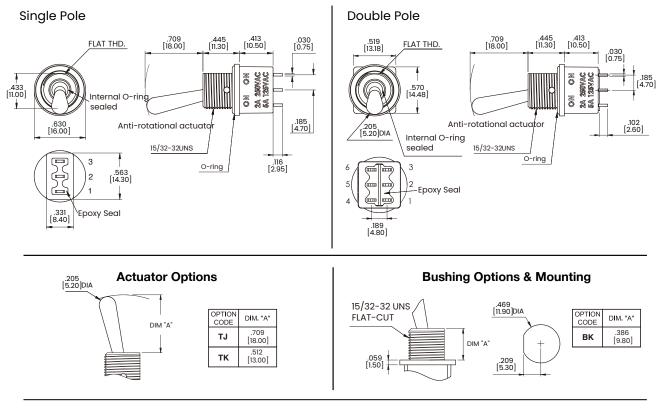
Optional Dress and Knurled Nuts

Sample Part Number 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)

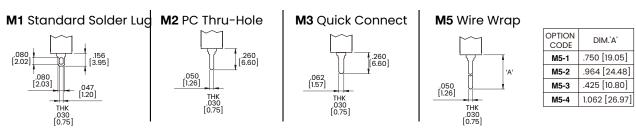
Optional Rubber Seals



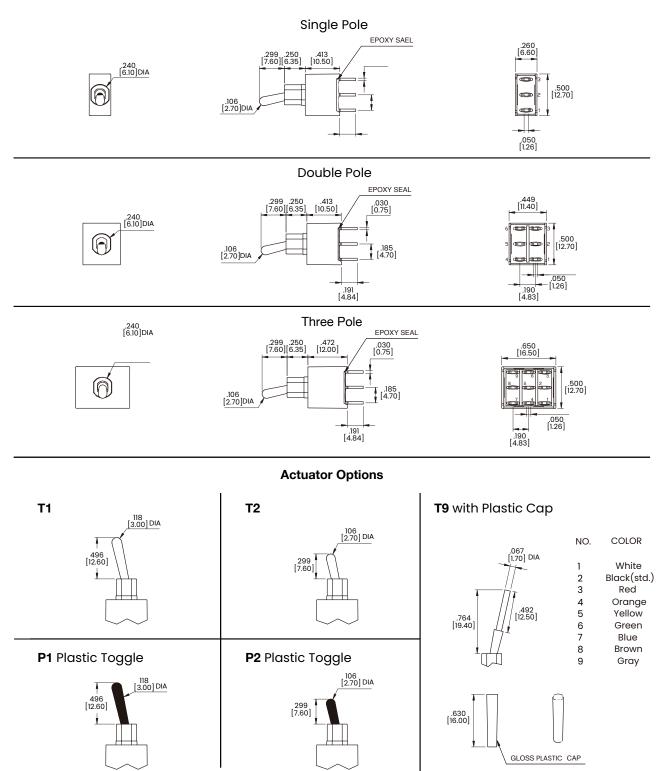
inches [millimeters]



Termination Options

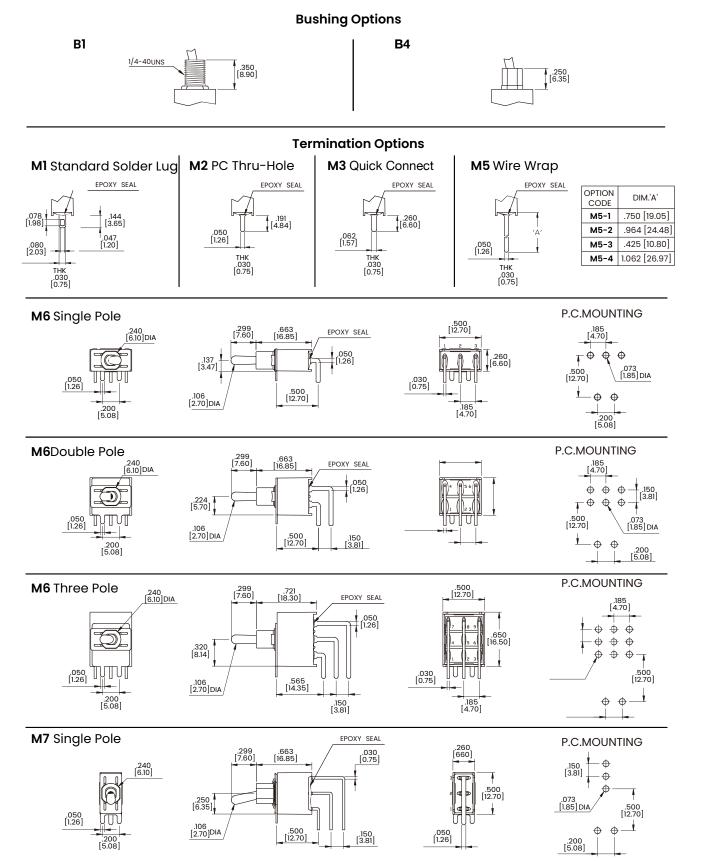


inches [millimeters]

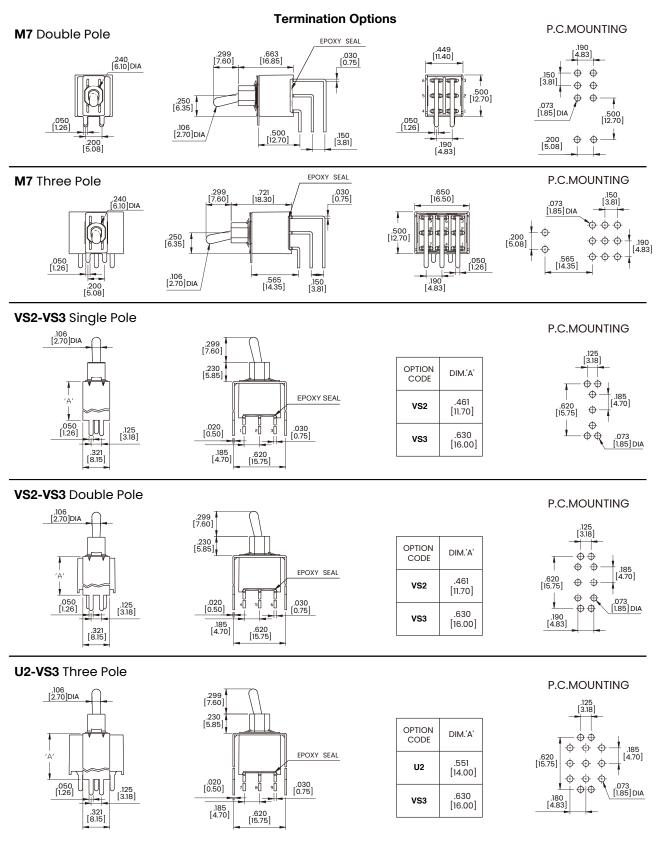


* Shown with B4 bushing. Subtract 0.75" (1.90mm) from actuator height for B1 bushing.

inches [millimeters]

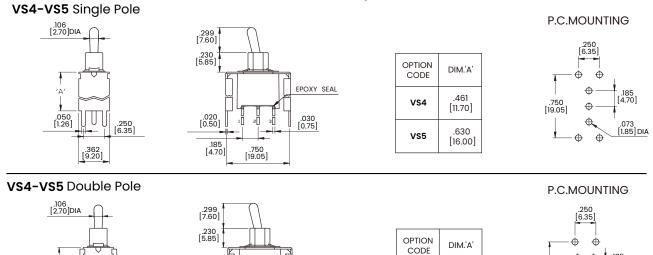


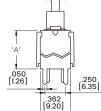
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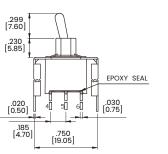


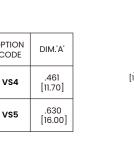
inches [millimeters]





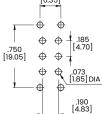




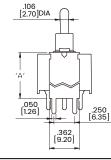


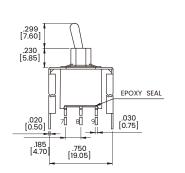
υ4

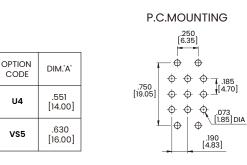
VS5



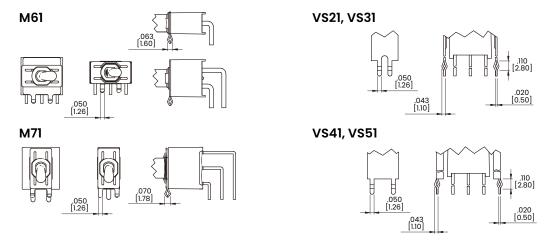
U4-VS5 Three Pole



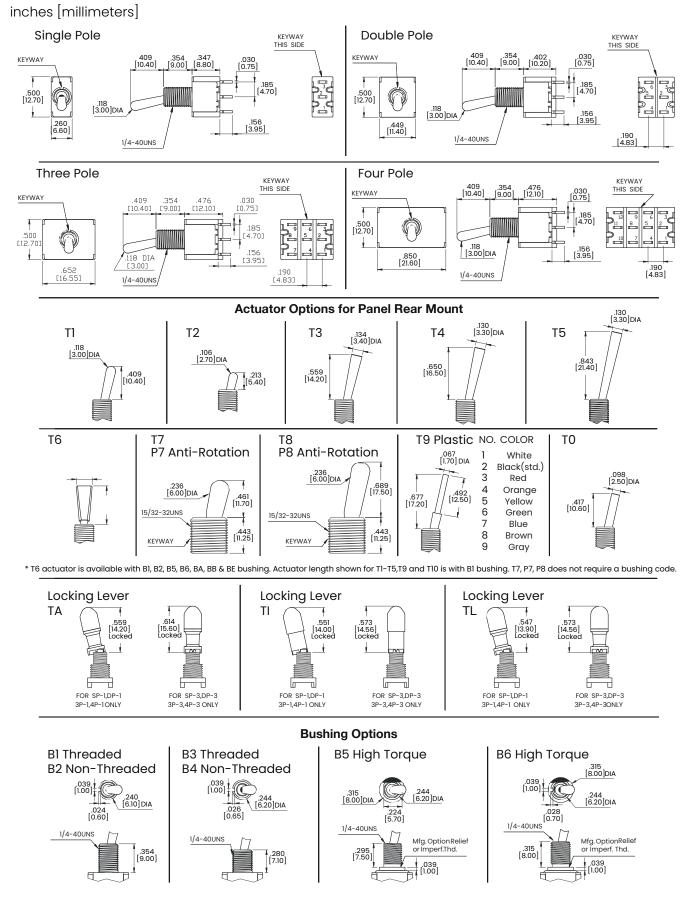


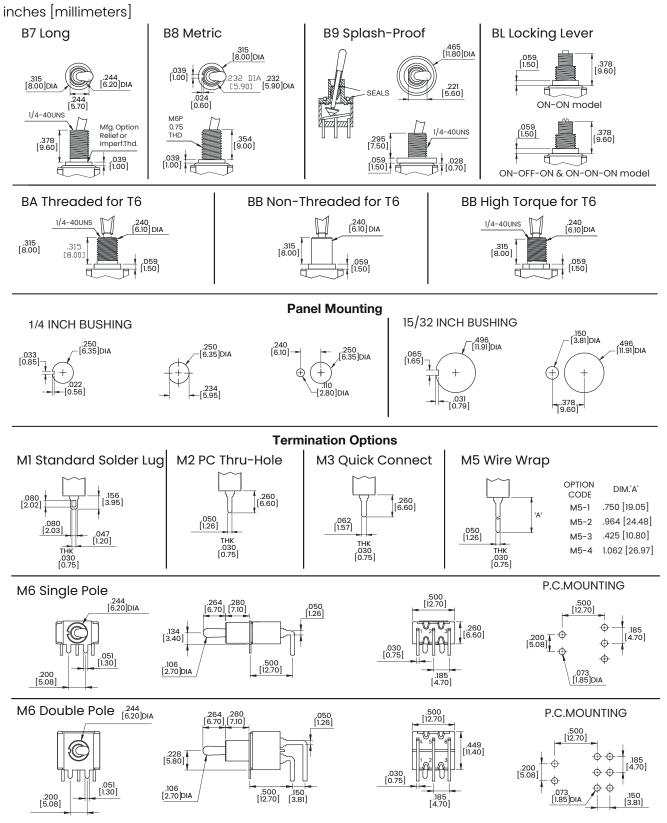


Snap-In Termination Options

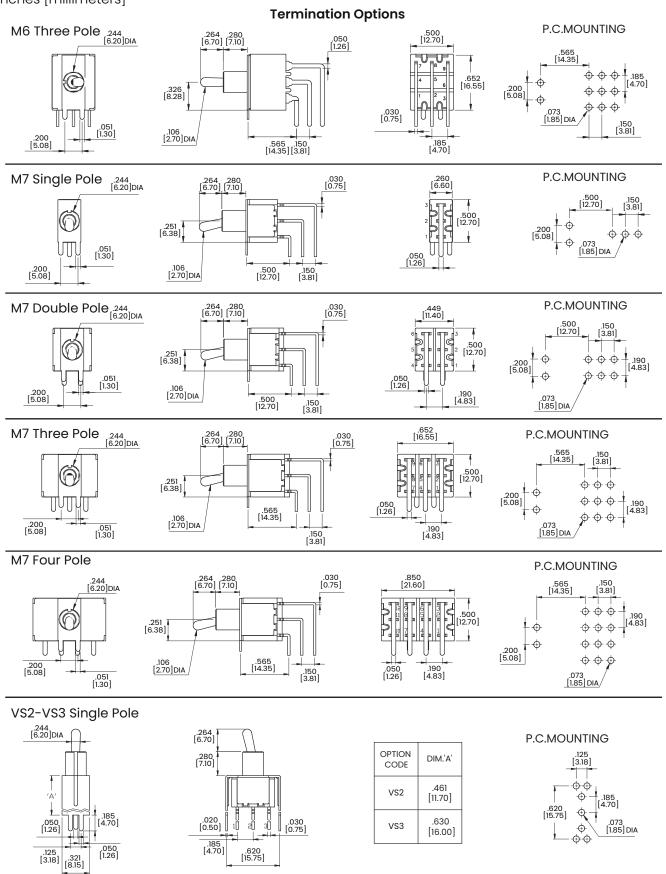


* PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.



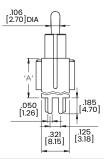


inches [millimeters]

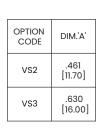


inches [millimeters]

VS2-VS3 Double Pole

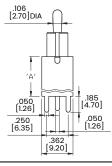


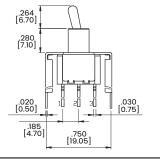
264 [6.70] 280 [7.10] [0.50] [0.50] [0.50] [0.50] [0.50] [0.575] [0.75] [0.75] [0.75]

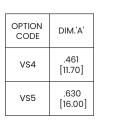


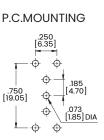
Termination Options

VS4-VS5 Single Pole

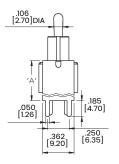


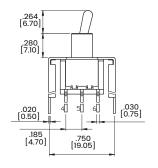






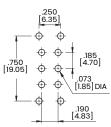
VS4-VS5 Double Pole





VS4	.461 [11.70]
VS5	.630 [16.00]

P.C.MOUNTING

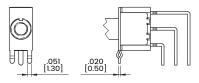


Snap-In Termination Options

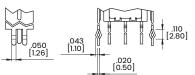
M61 (available with SP & DP)



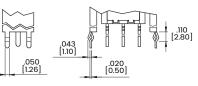
M71 (available with SP & DP)



VS21, VS31



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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