

# 1MS/1M1

## 1M-Series

### MINIATURE ROCKERS & PADDLES

The 1M family of miniature rocker & paddle switches is composed of two switch series; the **1M1-Series** miniature rocker and paddle switch, and the **1MS-Series** sealed miniature rocker and paddle switch. Both products feature PC mounting and offer a variety of ratings, circuits, contact materials, terminal platings, rocker and paddle actuator styles and colors.



#### Product Highlights:

- IP67 Sealing
- 9 Circuit Options
- Over 20 Termination Styles
- UL, CSA & cUL Approvals

#### Typical Applications:

- Instrumentation
- Test Equipment
- Telecommunications
- Networking
- Handheld Appliance

#### Resources:

[Download 3D CAD Files](#)

[IGS >](#) [STP >](#)



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**1MS-Series**  
**Sealed**  
 Miniature Rocker  
 & Rocker Switch



**1M1-Series**  
 Miniature Rocker  
 & Rocker Switch

**Electrical**

Contact Rating refer to ordering scheme  
 Electrical Life *1MS-Series:* 30,000 make & break cycles @ full load  
*1M1-Series:* 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 1MS-Series: IP67  
 Solder Heat Resistance MIL-STD-202, Method 210  
 Actuator Travel 25°

**Material**

Case *1MS-Series:* Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)  
*1M1-Series:* Dially phthalate (DAP) (UL 94V-0)  
 Rocker/Paddle *1MS-Series:* Nylon, black standard, internal o-ring sealed  
*1M1-Series:* Nylon (UL 94V-0)  
 Bushing *1MS-Series:* Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)  
*1M1-Series:* Brass, nickel plated  
 Housing *1MS-Series:* Spring Steel  
*1M1-Series:* Stainless Steel  
 Actuator Pivot & Mounting Bracket *1MS-Series:* Nylon (UL 94V-0)  
*1M1-Series:* Stainless Steel  
 Actuator Pivot Retainer *1MS-Series:* Stainless Steel  
 Switch Support Brass, tin plated  
 Terminal Seal Epoxy

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

**1MS - SP 1 - R6 / 2 M6 G E**

1 Series      2 Poles      3 Circuit      4 Actuator Style      5 Actuator Color      6 Termination      7 Contacts      8 Seal

**1 SERIES**

**1MS** Sealed Miniature Rocker 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

**3 CIRCUIT**

( ) - momentary

Position:	1	2	3
	2-3, 5-6, 8-9	Connected Terminals	2-1, 5-4, 8-7
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)
9*	OFF	ON	(ON)

\*Center Position Connects 2-3, 5-4, 8-9

**4 ACTUATOR STYLE**

<b>R1</b> Standard Rocker	<b>R4</b> Large Paddle
<b>R2</b> Standard Paddle	<b>R5</b> Large Rocker
<b>R3</b> Medium Rocker	<b>R6</b> Small Rocker
	<b>R7</b> Medium Paddle

**5 ACTUATOR COLOR**

1 White      2 Black      3 Red  
 Black is standard. Other colors available, consult factory.

**6 TERMINATION**

<b>M1</b> Solder Lug	<b>VS2</b> PC Mount, U bracket
<b>M2</b> PCB	<b>VS3</b> PC Mount, U bracket
<b>M3</b> Quick Connect	<b>VS4</b> PC Mount, U bracket
<b>M51</b> Wire Wrap	<b>VS5</b> PC Mount, U bracket
<b>M52</b> Wire Wrap	<b>VS21</b> Snap-In, U bracket
<b>M53</b> Wire Wrap	<b>VS31</b> Snap-In, U bracket
<b>M54</b> Wire Wrap	<b>VS41</b> Snap-In, U bracket
<b>M6</b> PC Mount, 90° horizontal	<b>VS51</b> Snap-In, U bracket
<b>M7</b> PC Mount, 90° vertical	<b>U2</b> Vertical Mount, 3-Pole
	<b>U4</b> Snap-In, U bracket, 3-Pole

See page 16-18 for dimensional specifications.

**7 CONTACTS / TERMINALS**

Contact	Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver <sup>1</sup>	gold over silver	5A 125VAC or 28VDC, 2A 250VAC	US, IP67
<b>K</b>	gold 2.5	tin 4	0.4VA max 20V max (AC/DC)	IP67
<b>P</b>	silver 1.6	tin 4	5A 125VAC or 28VDC, 2A 250VAC	US, IP67
<b>R</b>	gold 2	gold 3	0.4VA max 20V max (AC/DC)	IP67

**8 EPOXY SEAL**

**E** Epoxy Seal      **0** without Epoxy Seal

Notes:

- Tin option not available with M1 and M3 terminals.
- 1 Movable contact and terminal platings: silver over copper alloy
- 2 Movable contact 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

**1M1 - SP 1 - R8 / 2 - M6 Q E**

1 Series      2 Poles      3 Circuit      4 Actuator Style      5 Actuator Color      6 Frame Color      7 Termination      8 Contacts      9 Seal

**1 SERIES**

**1M1** Miniature Rocker 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
	2-3, 5-6, 8-9, 11-12	Connected Terminals	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 <sup>1</sup>	ON	ON	ON
7 <sup>1</sup>	(ON)	ON	(ON)
8 <sup>1</sup>	ON	ON	(ON)
9 <sup>2</sup>	NONE	ON	(ON)

**4 ACTUATOR STYLE**

<b>R1</b> Standard Rocker	<b>R5</b> Large rocker
<b>R2</b> Standard Paddle	<b>R6</b> Rocker & frame
<b>R3</b> Medium Rocker	<b>R7</b> Paddle & frame
<b>R4</b> Large Paddle	<b>R8</b> Rocker without frame
	<b>R9</b> Paddle without frame

**5 ACTUATOR COLOR / 6 FRAME COLOR**

0 No Frame\*      2 Black  
 1 White      3 Red  
 Black is standard. Other colors available, consult factory.  
 \*Actuator style R8 or R9 only.

**7 TERMINATION**

<b>M1</b> Solder Lug	<b>VS3</b> PC Mount, U bracket
<b>M2</b> PCB	<b>VS4</b> PC Mount, U bracket
<b>M3</b> Quick Connect	<b>VS5</b> PC Mount, U bracket
<b>M51</b> Wire Wrap	<b>M61</b> Snap-In, U bracket, 90° horizontal
<b>M52</b> Wire Wrap	<b>M71</b> Snap-In, U bracket, 90° vertical
<b>M53</b> Wire Wrap	<b>VS21</b> Snap-In, U bracket
<b>M54</b> Wire Wrap	<b>VS31</b> Snap-In, U bracket
<b>M6</b> PC Mount, 90° horizontal	<b>VS41</b> Snap-In, U bracket
<b>M7</b> PC Mount, 90° vertical	<b>VS51</b> Snap-In, U bracket
<b>VS2</b> PC Mount, U bracket	<b>U4</b> Snap-In, U bracket, 3-Pole

See page 21-23 for dimensional specifications.

**8 CONTACTS / TERMINALS**

Contact	Material	Terminal Plating	Rating	Approvals
<b>G</b>	silver <sup>3</sup>	gold over silver	5A 125VAC or 28VDC, 2A 250VAC	US, IP67
<b>K</b>	gold 4,7	tin 6	0.4VA max 20V max (AC/DC)	N/A
<b>P</b>	silver 3,8	tin 6	5A 125VAC or 28VDC, 2A 250VAC	US, IP67
<b>Q</b>	silver <sup>3</sup>	silver <sup>3</sup>	5A 125VAC or 28VDC, 2A 250VAC	US, IP67
<b>R</b>	gold 4	gold 5	0.4VA max 20V max (AC/DC)	N/A

**9 EPOXY SEAL**

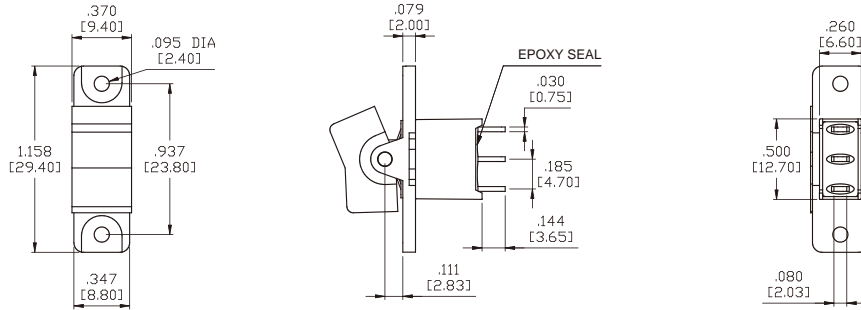
**E** Epoxy Seal      **0** without Epoxy Seal

Notes:

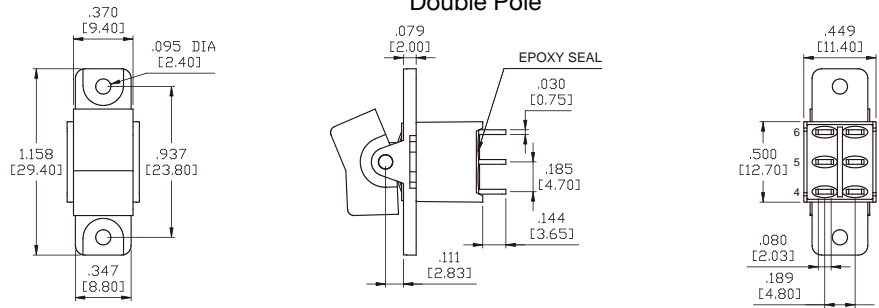
- Tin option not available with M1 and M3 terminals.
- 1 Double-Pole and Four-Pole only. Center position connects 2-3, 5-4, 8-9, 11-10
- 2 Double-Pole only
- 3 Movable contact and terminal platings: silver over copper alloy
- 4 Movable contact platings: gold over nickel over copper alloy
- 5 Terminal platings: gold over nickel over copper alloy
- 6 Terminal platings: tin over copper alloy
- 7 Terminal contact platings: gold over nickel alloy
- 8 Terminal contact platings: silver over nickel alloy

## 1MS-Series Dimensional Specifications: in. [mm]

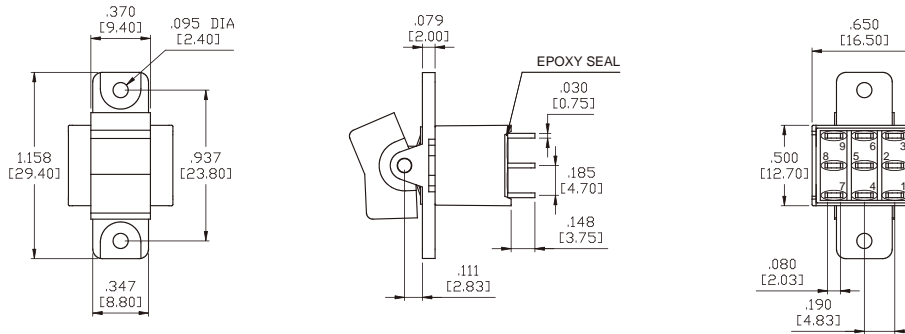
### Single Pole



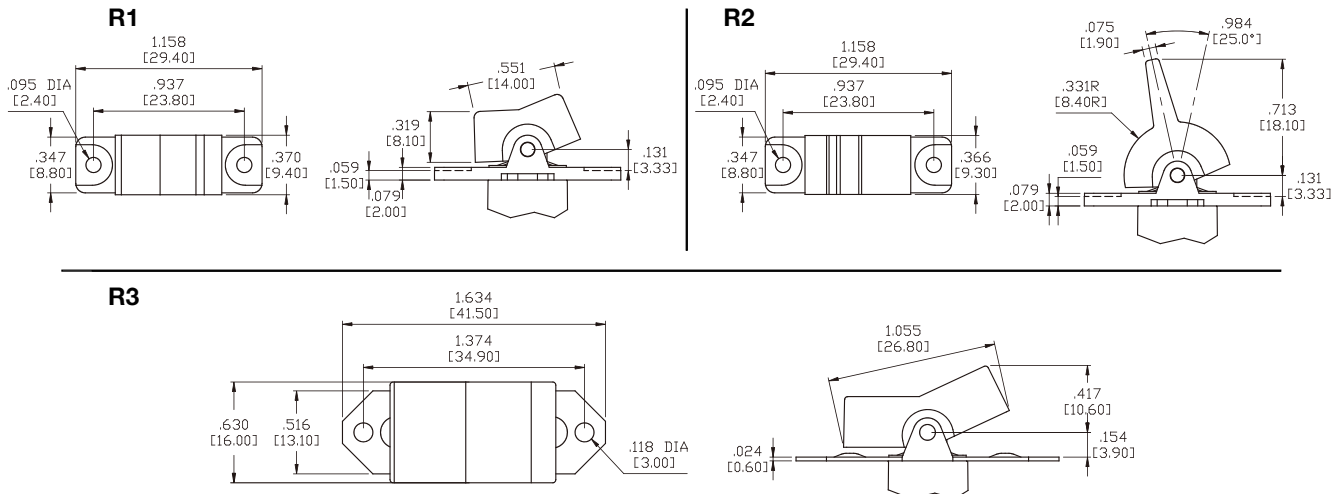
### Double Pole



### Three Pole



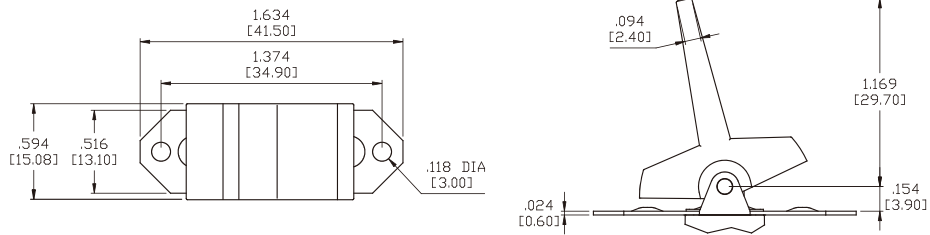
### Actuator Options for Panel Rear Mount



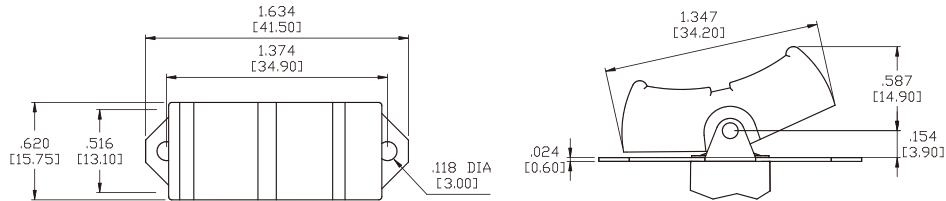
## 1MS-Series Dimensional Specifications: in. [mm]

### Actuator Options for Panel Rear Mount

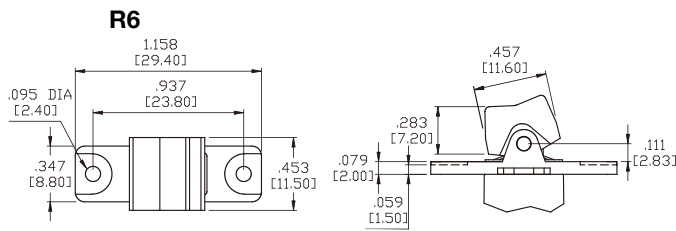
**R4**



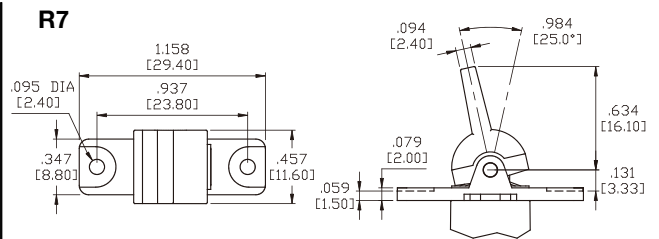
**R5**



**R6**

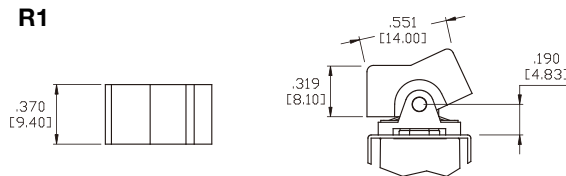


**R7**

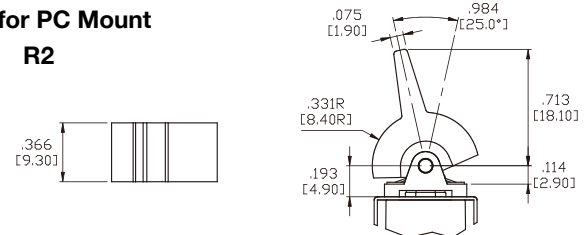


### Actuator Options for PC Mount

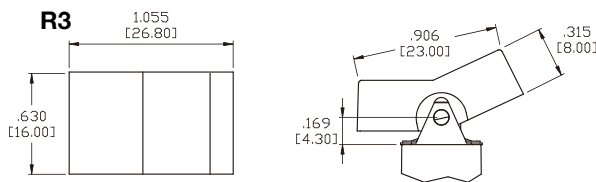
**R1**



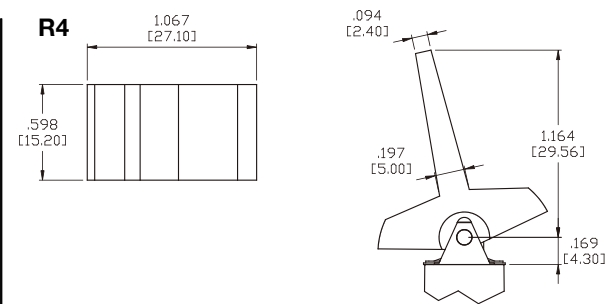
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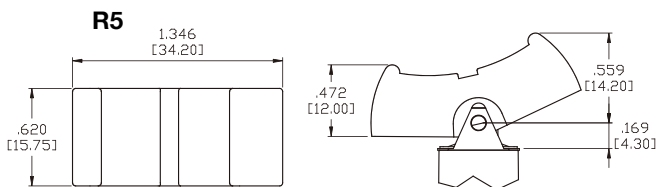
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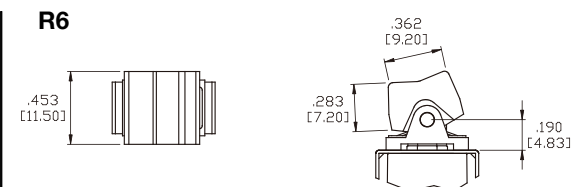
**R4**



**R5**



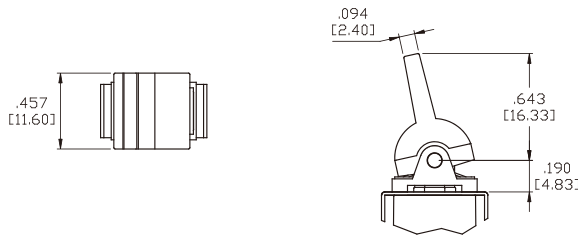
**R6**



# 1MS-Series Dimensional Specifications: in. [mm]

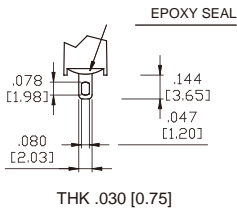
## Actuator Options for PC Mount

R7

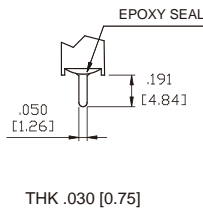


## Termination Options

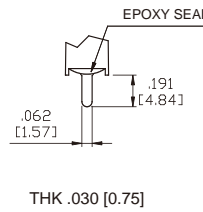
### M1 Standard Solder Lug



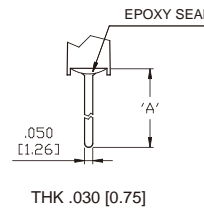
### M2 PC Thru-Hole



### M3 Quick Connect

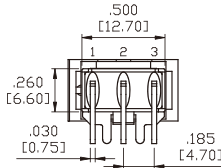
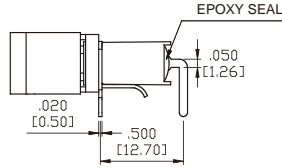
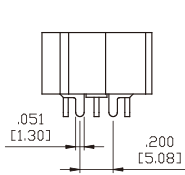


### M5 Wire Wrap

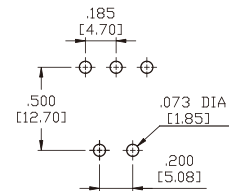


OPTION CODE	DIM. 'A'
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M5-2	.924 [23.48]
M5-3	.386 [9.80]
M5-4	1.022 [25.97]

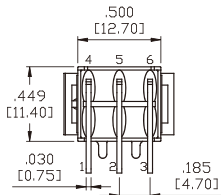
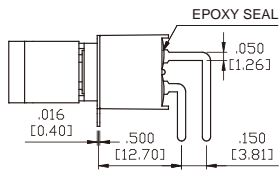
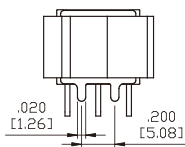
### M6 Single Pole



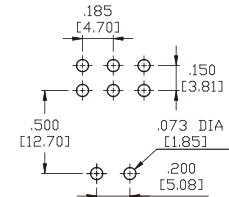
### P.C.MOUNTING



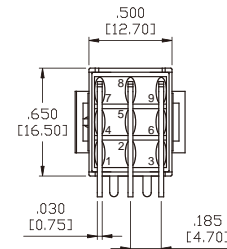
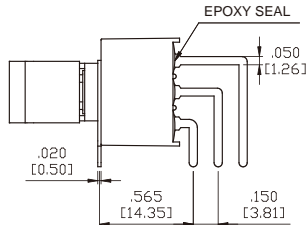
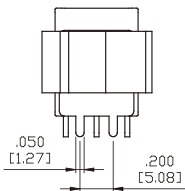
### M6 Double Pole



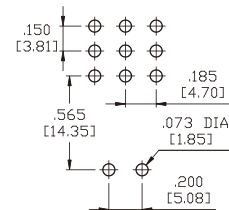
### P.C.MOUNTING



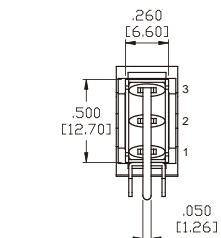
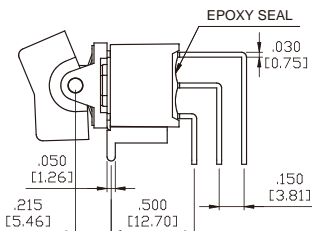
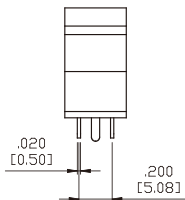
### M6 Three Pole



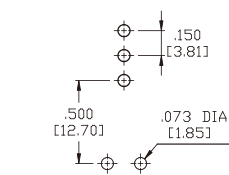
### P.C.MOUNTING



### M7 Single Pole



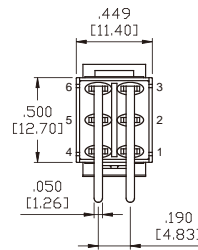
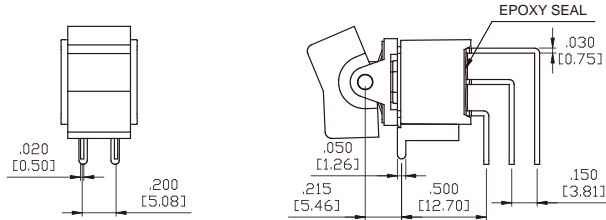
### P.C.MOUNTING



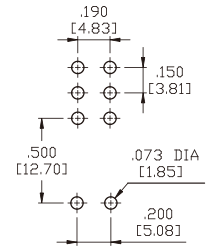
# 1MS-Series Dimensional Specifications: in. [mm]

## Termination Options

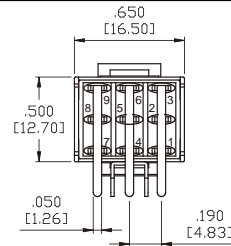
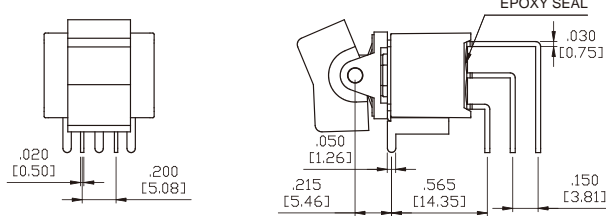
### M7 Double Pole



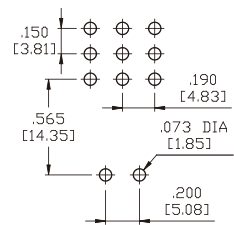
### P.C.MOUNTING



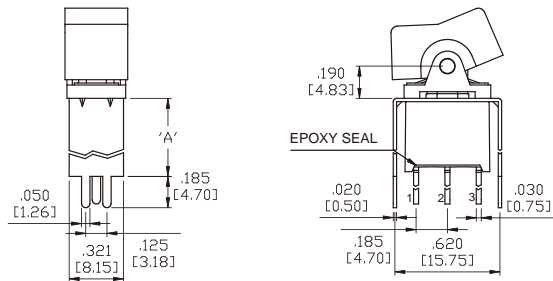
### M7 Three Pole



### P.C.MOUNTING

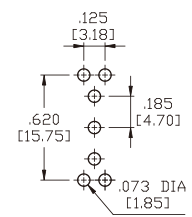


### VS2-VS3 Single Pole

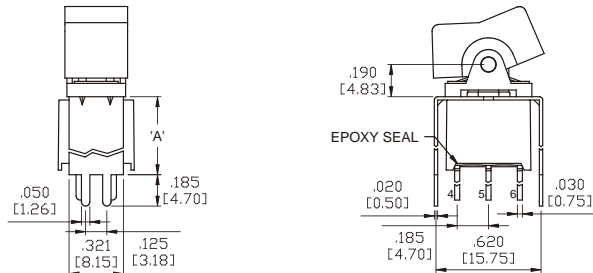


OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

### P.C.MOUNTING

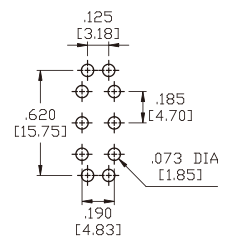


### VS2-VS3 Double Pole

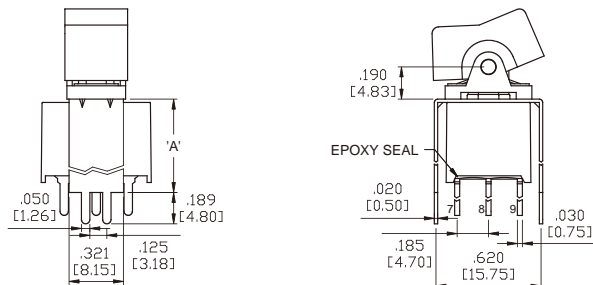


OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

### P.C.MOUNTING

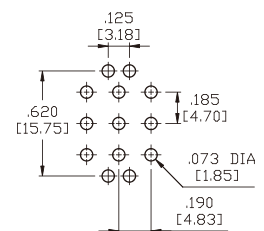


### U2-VS3 Three Pole



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

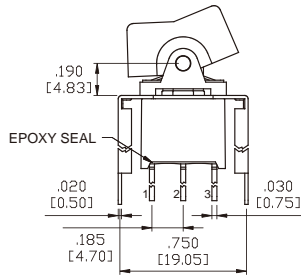
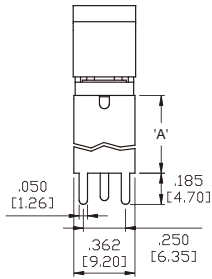
### P.C.MOUNTING



## 1MS-Series Dimensional Specifications: in. [mm]

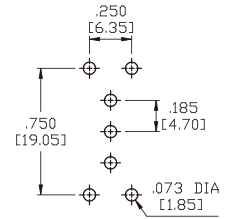
### Termination Options

#### VS4-VS5 Single Pole

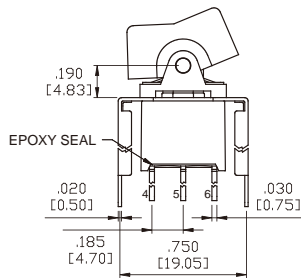
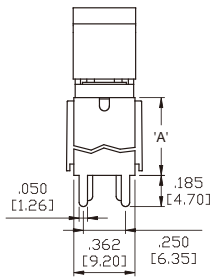


OPTION CODE	DIM: 'A'
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<b>VS5</b>	.630 [16.00]

#### P.C.MOUNTING

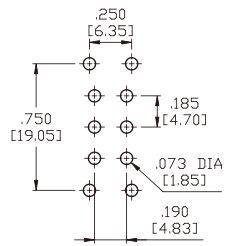


#### VS4-VS5 Double Pole

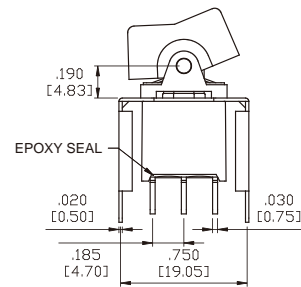
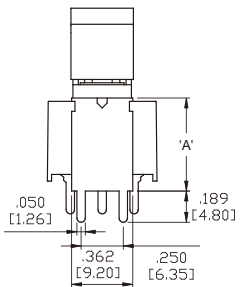


OPTION CODE	DIM: 'A'
<b>VS4</b>	.461 [11.70]
<b>VS5</b>	.630 [16.00]

#### P.C.MOUNTING

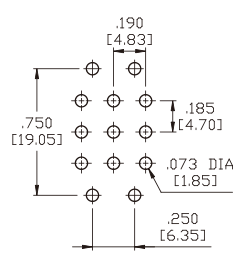


#### U4-VS5 Three Pole



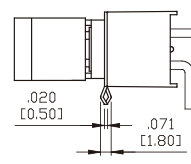
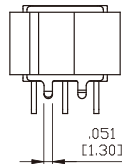
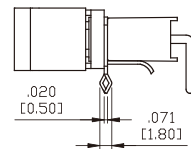
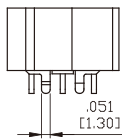
OPTION CODE	DIM: 'A'
<b>U4</b>	.551 [14.00]
<b>VS5</b>	.630 [16.00]

#### P.C.MOUNTING

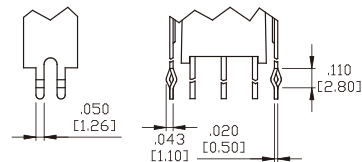


### Snap-In Termination Options

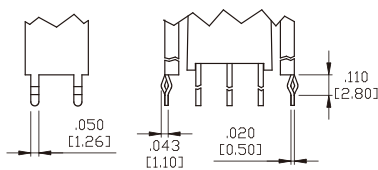
#### M61



#### VS21, VS31



#### VS41, VS51

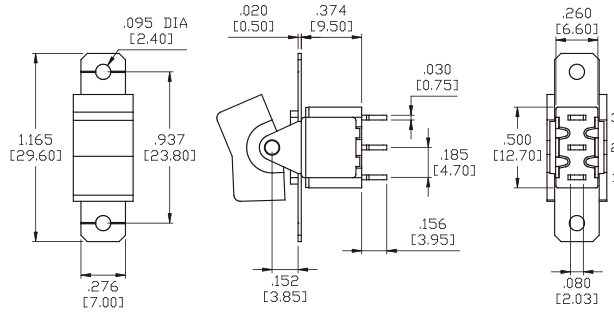


\* PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.

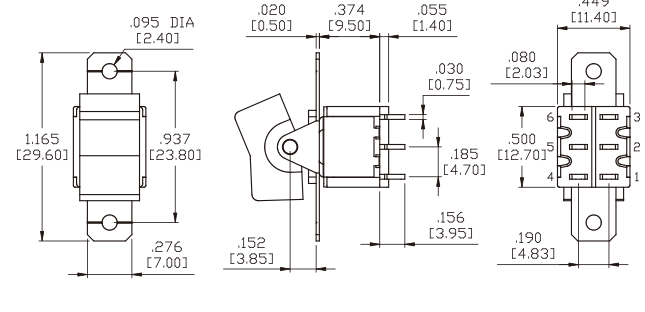


## 1M1-Series Dimensional Specifications: in. [mm]

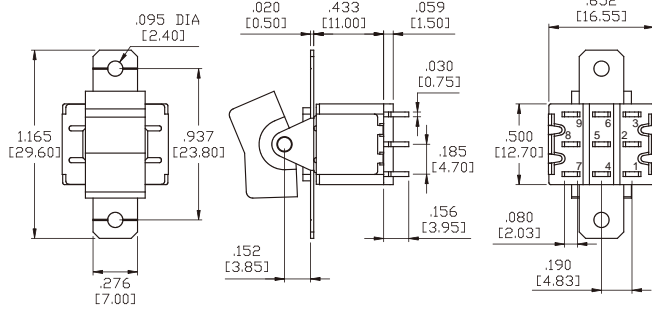
### Single Pole



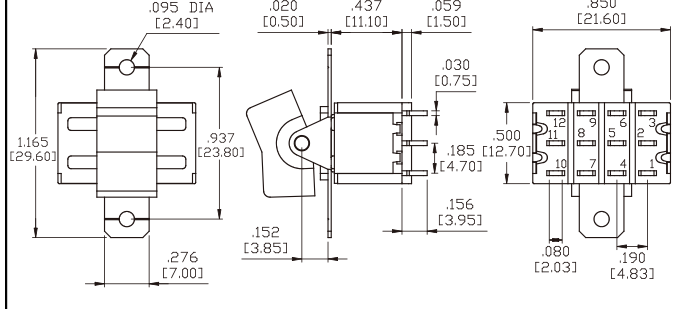
### Double Pole



### Three Pole

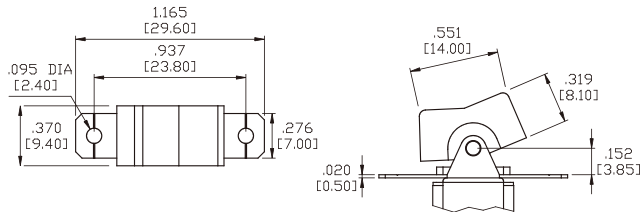


### Four Pole

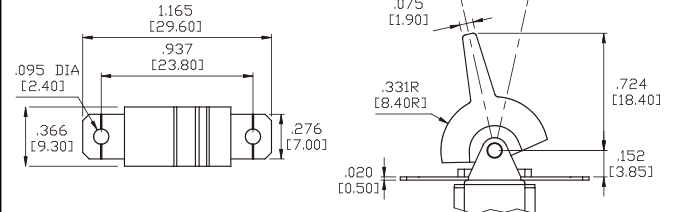


### Actuator Options for Panel Rear Mount

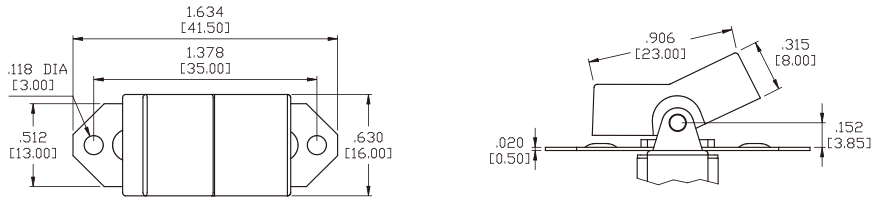
#### R1



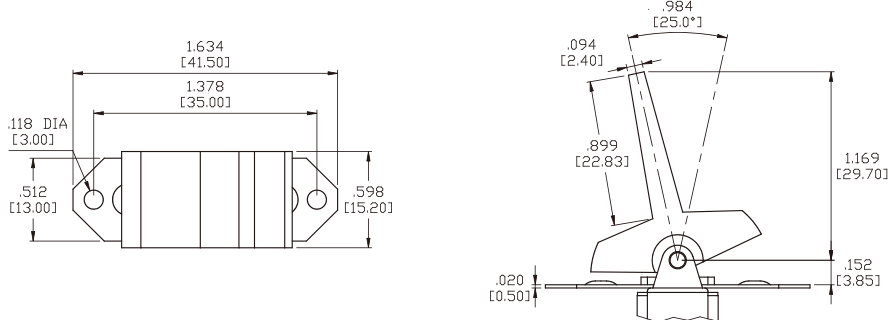
#### R2



#### R3



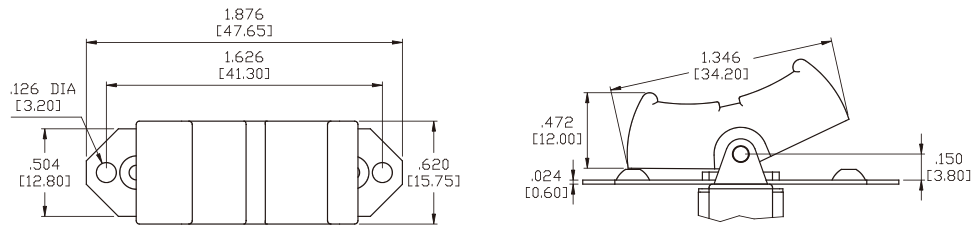
#### R4



## 1M1-Series Dimensional Specifications: in. [mm]

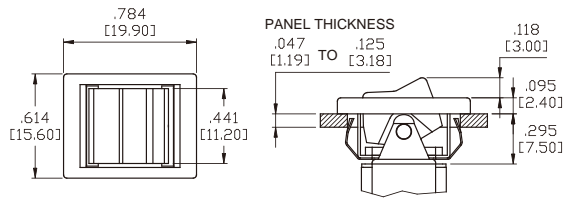
### Actuator Options for Panel Rear Mount

**R5**

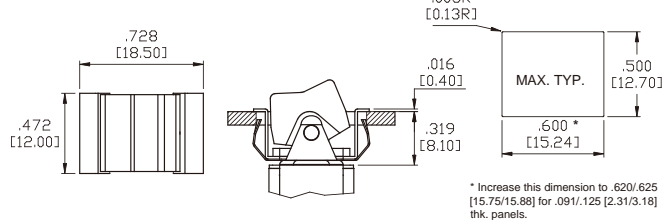


### Actuator Options for Snap-In Mount

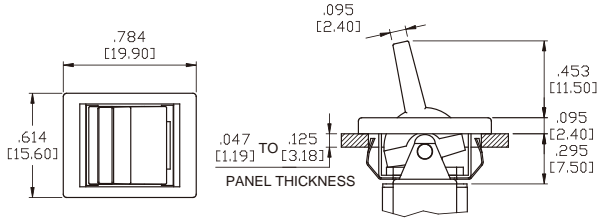
**R6**



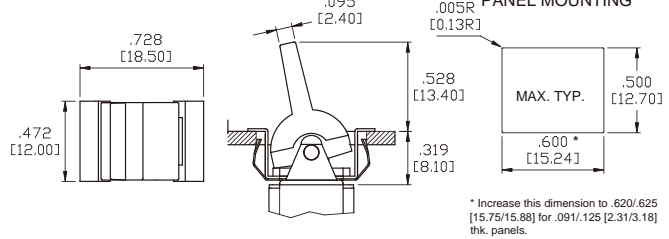
**R6 WITHOUT FRAME**



**R7**

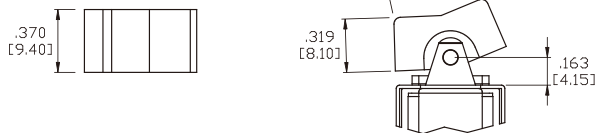


**R7 WITHOUT FRAME**

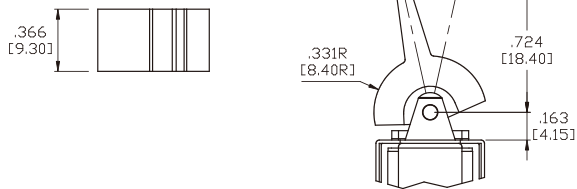


### Actuator Options for PC Mount

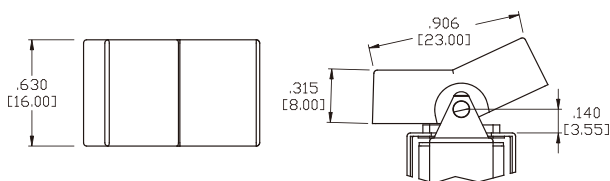
**R1**



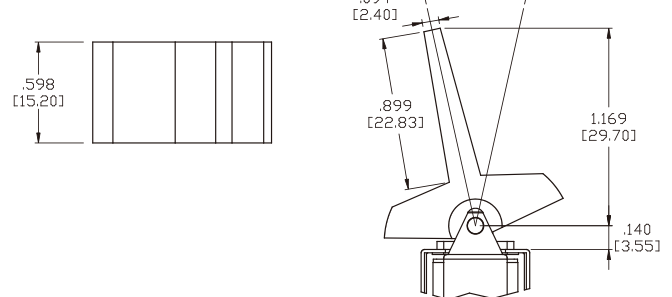
**R2**



**R3**

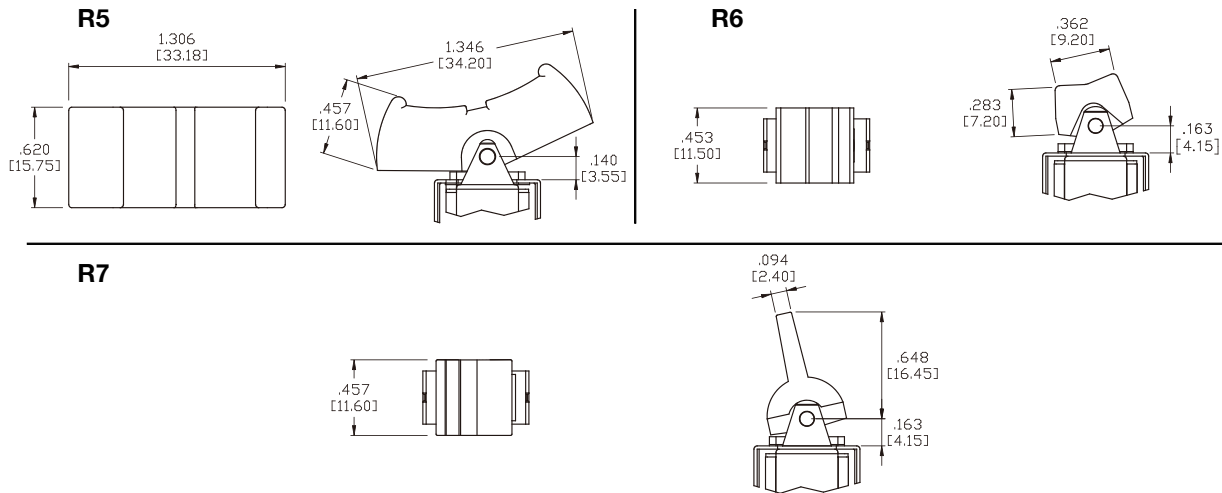


**R4**



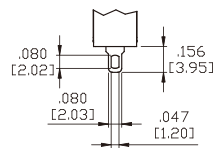
## 1M1-Series Dimensional Specifications: in. [mm]

### Actuator Options for PC Mount



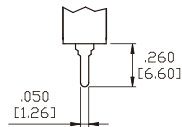
### Termination Options

#### M1 Standard Solder Lug



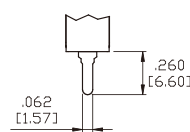
THK .030 [0.75]

#### M2 PC Thru-Hole



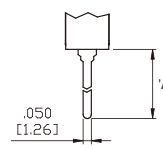
THK .030 [0.75]

#### M3 Quick Connect



THK .030 [0.75]

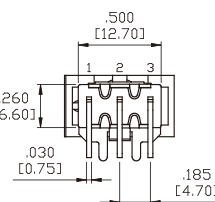
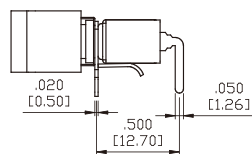
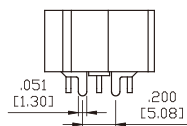
#### M5 Wire Wrap



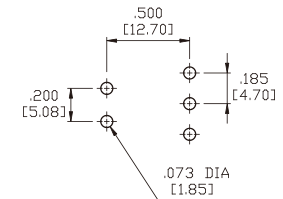
THK .030 [0.75]

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]

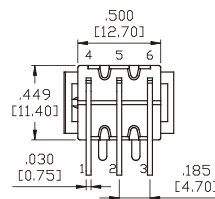
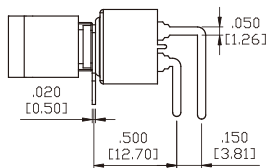
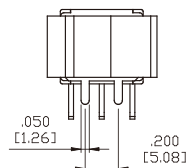
#### M6 Single Pole



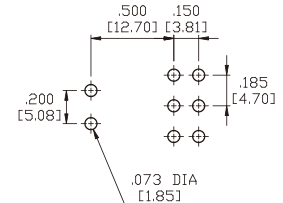
#### P.C.MOUNTING



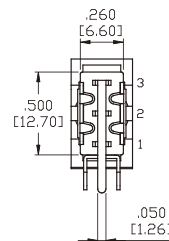
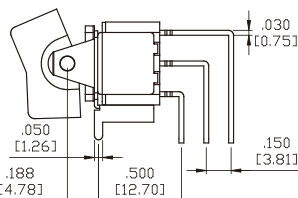
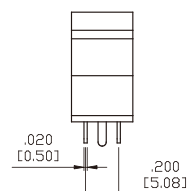
#### M6 Double Pole



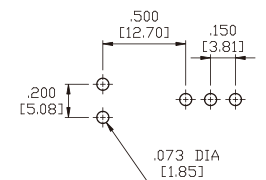
#### P.C.MOUNTING



#### M7 Single Pole



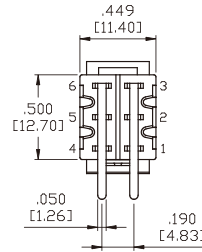
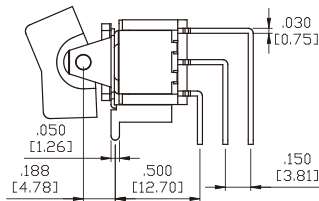
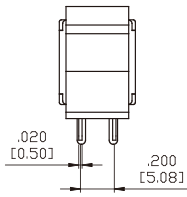
#### P.C.MOUNTING



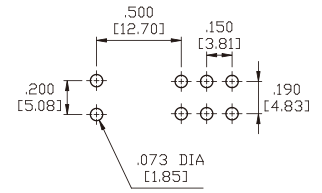
# 1M1-Series Dimensional Specifications: in. [mm]

## Termination Options

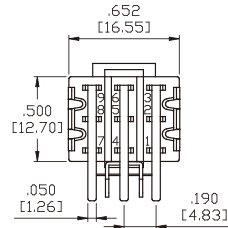
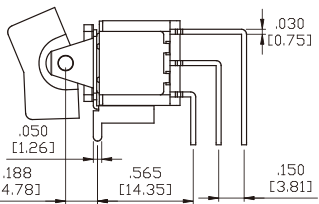
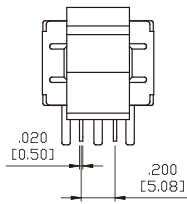
### M7 Double Pole



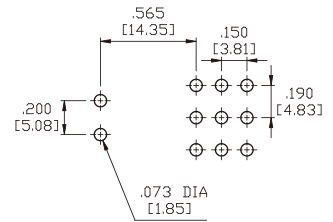
### P.C.MOUNTING



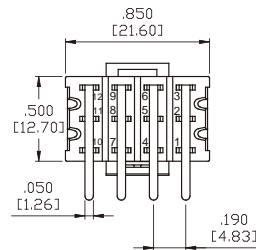
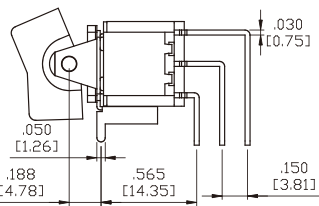
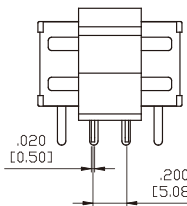
### M7 Three Pole



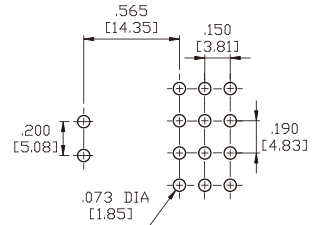
### P.C.MOUNTING



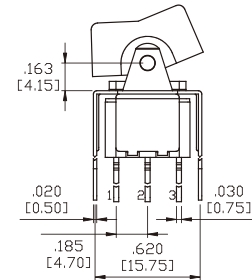
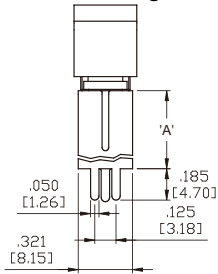
### M7 Four Pole



### P.C.MOUNTING

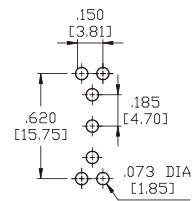


### VS2-VS3 Single Pole

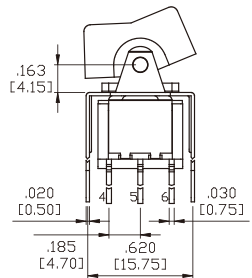
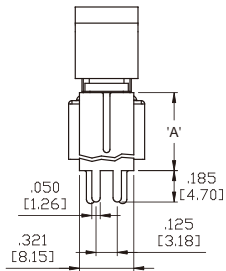


OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

### P.C.MOUNTING

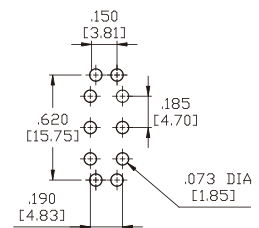


### VS2-VS3 Double Pole



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

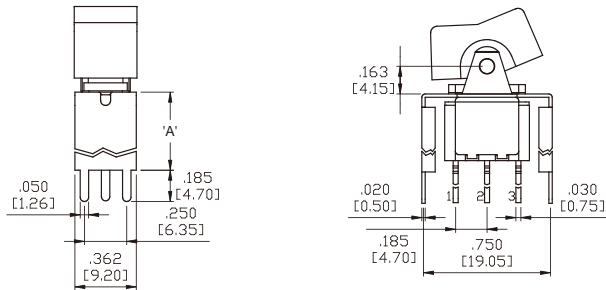
### P.C.MOUNTING



# 1M1-Series Dimensional Specifications: in. [mm]

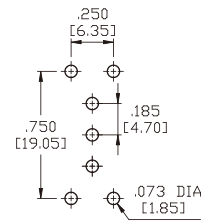
## Termination Options

### VS4-VS5 Single Pole

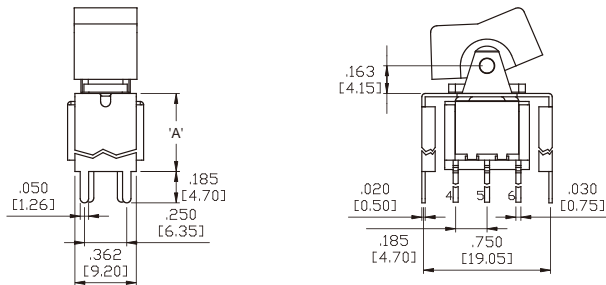


OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

### P.C.MOUNTING

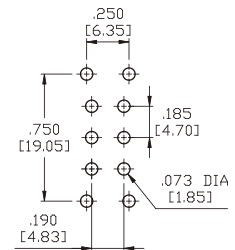


### VS4-VS5 Double Pole

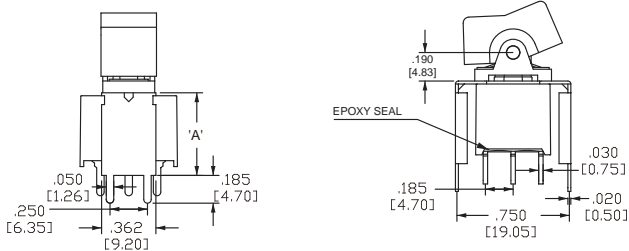


OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

### P.C.MOUNTING

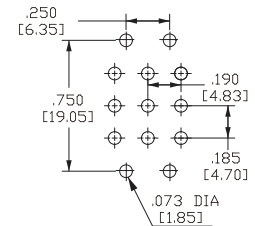


### U4-VS5 Three Pole



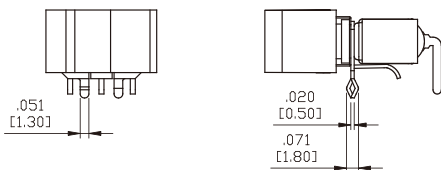
OPTION CODE	DIM.'A'
U4	.551 [14.00]
VS5	.630 [16.00]

### P.C.MOUNTING

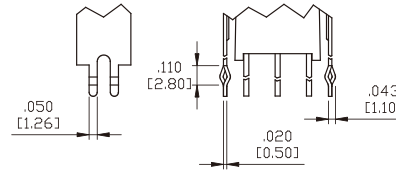


## Snap-In Termination Options

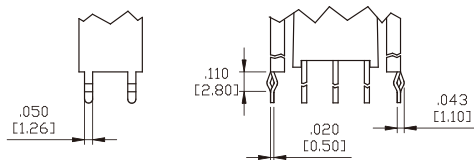
### M61



### VS21, VS31



### VS41, VS51



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



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