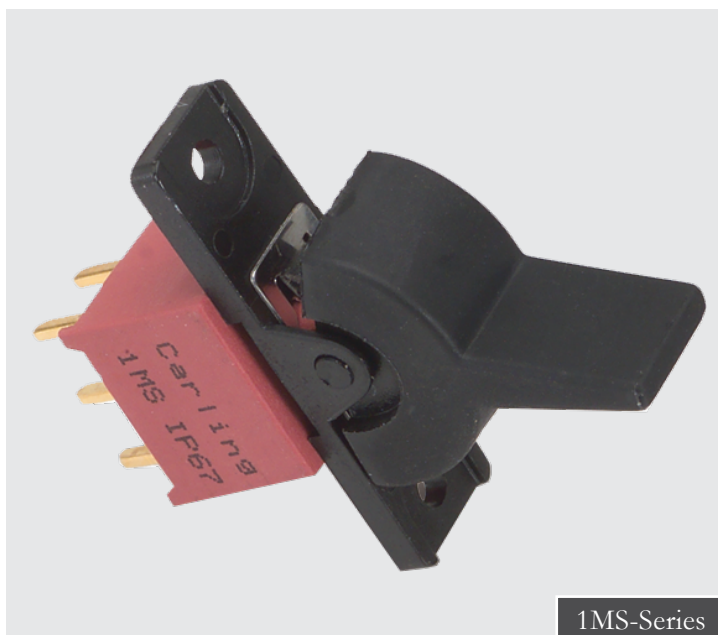


1MS/1M1

1M-Series

MINIATURE ROCKERS & PADDLES

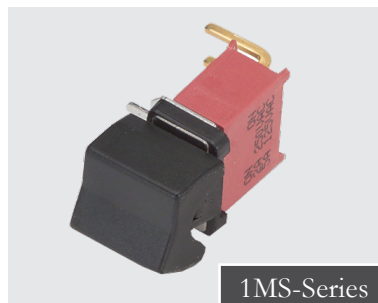
The 1M family of miniature rocker & paddle switches is composed of two switch series; the **1M1-Series** miniature rocker and paddle switch, and the **1MS-Series** sealed miniature rocker and paddle switch. Both products feature PC mounting and offer a variety of ratings, circuits, contact materials,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



1MS-Series



1M1-Series



1MS-Series

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:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)

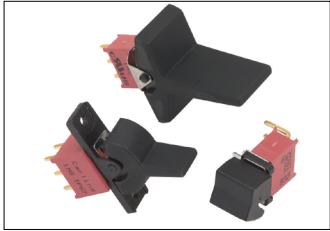


Carling Technologies®

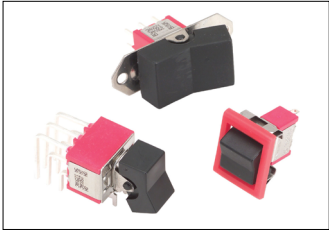
Innovative Designs. Powerful Solutions.

Carling Technologies, Inc.
60 Johnson Avenue, Plainville, CT 06062
Email: sales@carlingtech.com
Application Support: team2@carlingtech.com
Phone: 860.793.9281 Fax: 860.793.9231

www.carlingtech.com



1MS-Series
Sealed
Miniature Rocker
& Rocker Switch



1M1-Series
Miniature Rocker
& Rocker Switch

Electrical

Contact Rating	refer to ordering scheme
Electrical Life	<i>1MS-Series:</i> 30,000 make & break cycles @ full load <i>1M1-Series:</i> 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	<i>1MS-Series:</i> Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) <i>1M1-Series:</i> Dially phthalate (DAP) (UL 94V-0)
Rocker/Paddle	<i>1MS-Series:</i> Nylon, black standard, internal o-ring sealed <i>1M1-Series:</i> Nylon (UL 94V-0)
Bushing	<i>1MS-Series:</i> Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) <i>1M1-Series:</i> Brass, nickel plated
Housing	<i>1MS-Series:</i> Spring Steel <i>1M1-Series:</i> Stainless Steel
Actuator Pivot & Mounting Bracket	<i>1MS-Series:</i> Nylon (UL 94V-0) <i>1M1-Series:</i> Stainless Steel
Actuator Pivot Retainer	<i>1MS-Series:</i> 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

R1 Standard Rocker **R4** Large Paddle
R2 Standard Paddle **R5** Large Rocker
R3 Medium Rocker **R6** Small Rocker
R7 Medium Paddle

5 ACTUATOR COLOR

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

6 TERMINATION

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

See page 16-18 for dimensional specifications.

7 CONTACTS / TERMINALS

Contact	Material	Terminal Plating	Rating	Approvals
G	silver ¹	gold over silver	5A 125VAC or 28VDC, 2A 250VAC	UL, IP67
K	gold 2.5	tin ⁴	0.4VA max 20V max (AC/DC)	IP67
P	silver 1.6	tin ⁴	5A 125VAC or 28VDC, 2A 250VAC	UL, IP67
R	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 ¹	ON	ON	ON
7 ¹	(ON)	ON	(ON)
8 ¹	ON	ON	(ON)
9 ²	NONE	ON	(ON)

4 ACTUATOR STYLE

R1 Standard Rocker **R5** Large rocker
R2 Standard Paddle **R6** Rocker & frame
R3 Medium Rocker **R7** Paddle & frame
R4 Large Paddle **R8** Rocker without frame
R9 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

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

See page 21-23 for dimensional specifications.

8 CONTACTS / TERMINALS

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

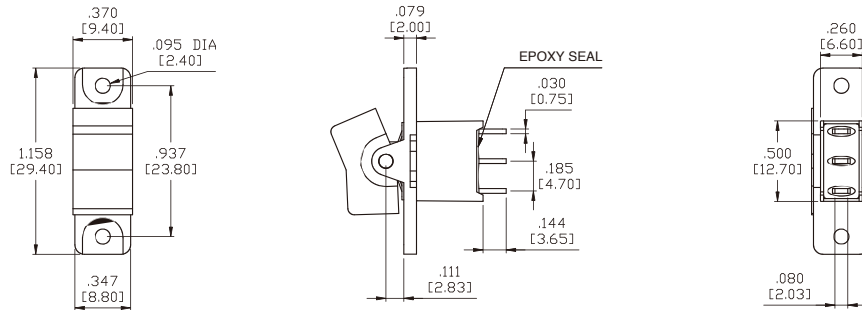
6 Terminal platings: tin over copper alloy

7 Terminal contact platings: gold over nickel alloy

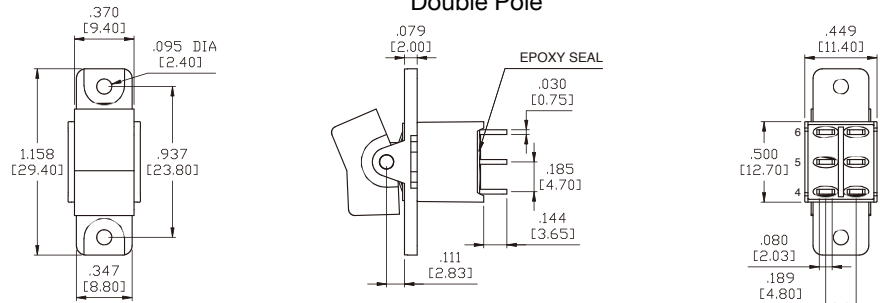
8 Terminal contact platings: silver over nickel alloy

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

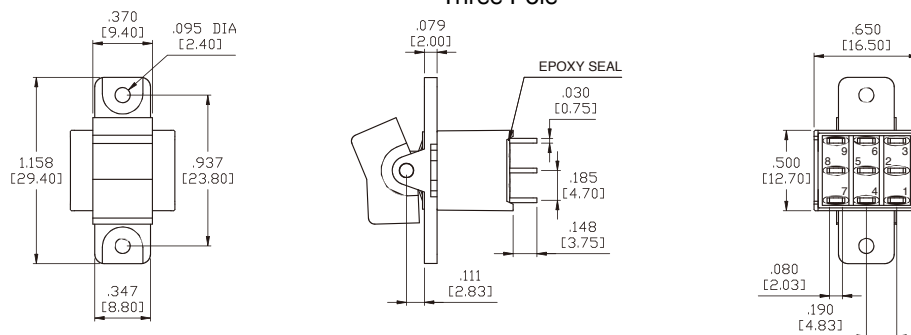
Single Pole



Double Pole

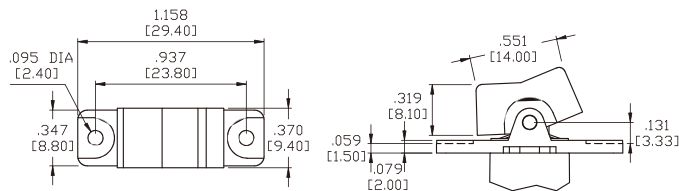


Three Pole

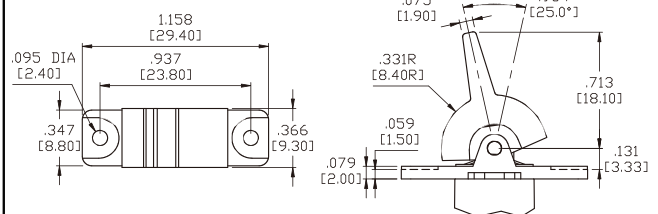


Actuator Options for Panel Rear Mount

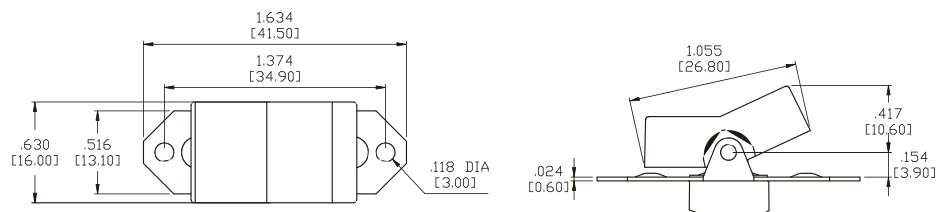
R1



R2



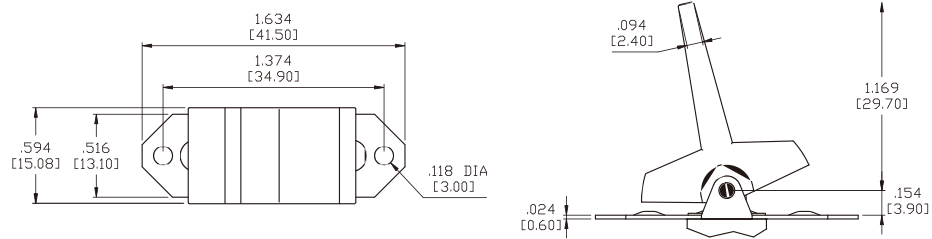
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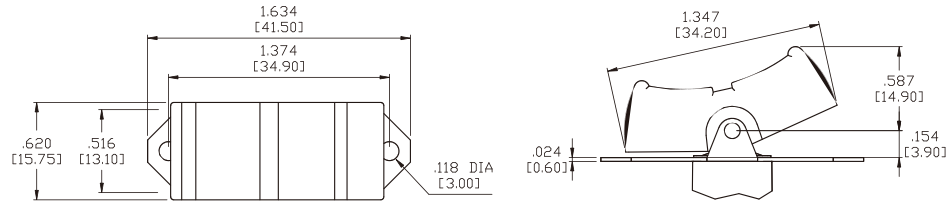
1MS-Series Dimensional Specifications: in. [mm]

Actuator Options for Panel Rear Mount

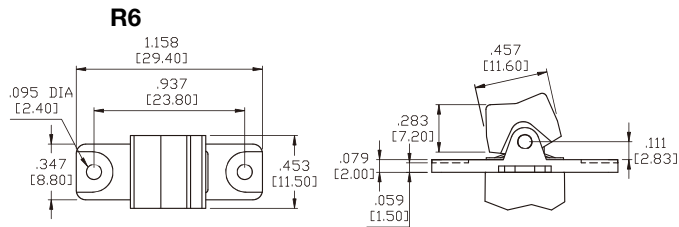
R4



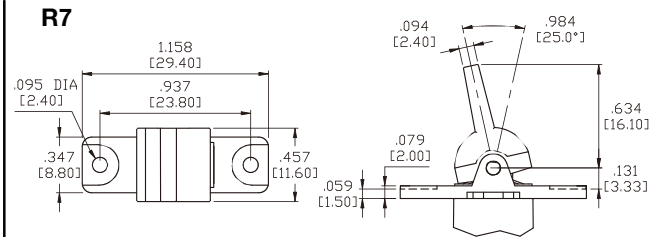
R5



R6

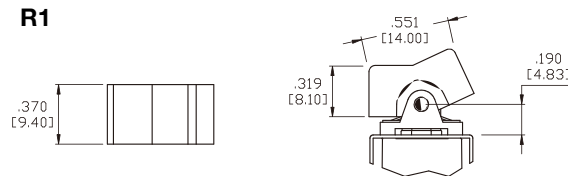


R7

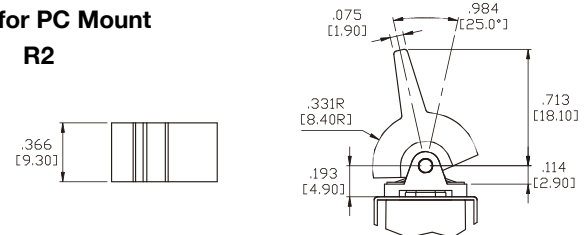


Actuator Options for PC Mount

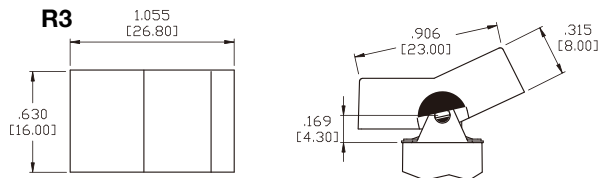
R1



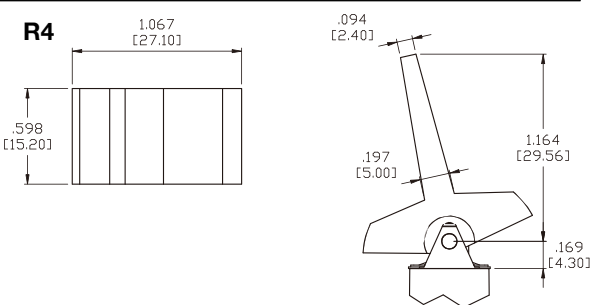
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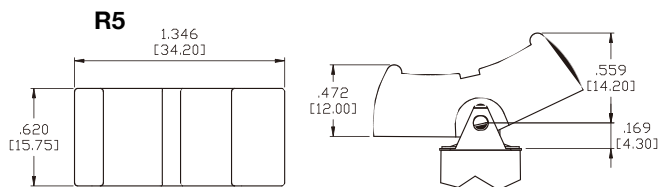
R3



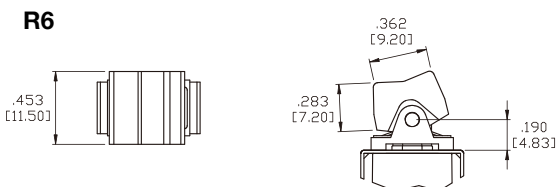
R4



R5



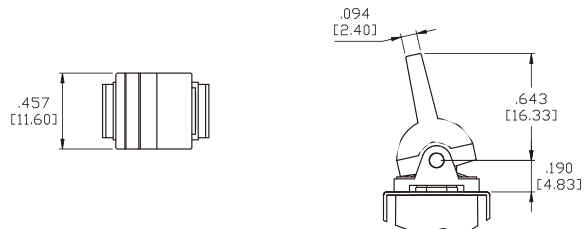
R6



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

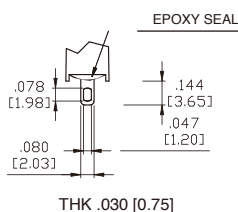
Actuator Options for PC Mount

R7

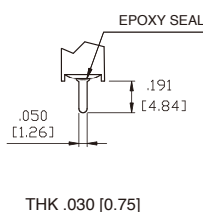


Termination Options

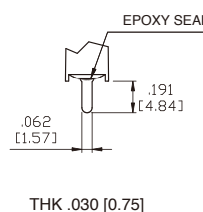
M1 Standard Solder Lug



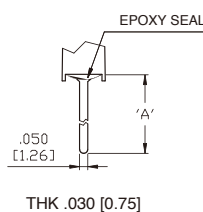
M2 PC Thru-Hole



M3 Quick Connect

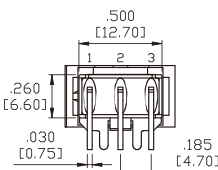
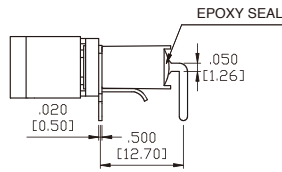
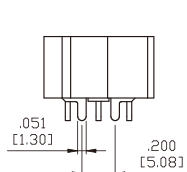


M5 Wire Wrap

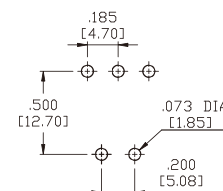


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M5-2	.924 [23.48]
M5-3	.386 [9.80]
M5-4	1.022 [25.97]

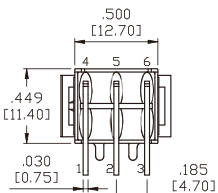
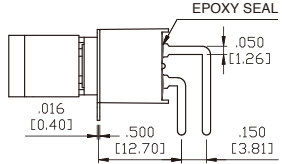
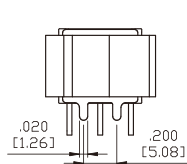
M6 Single Pole



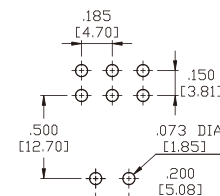
P.C.MOUNTING



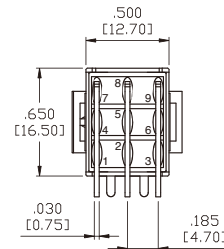
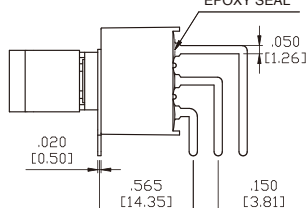
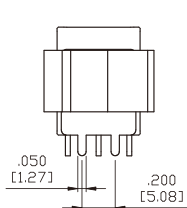
M6 Double Pole



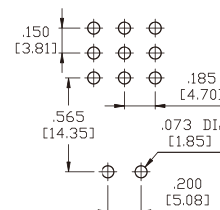
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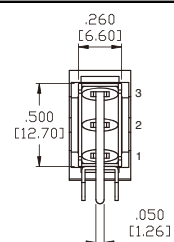
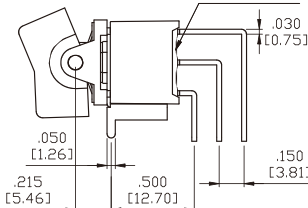
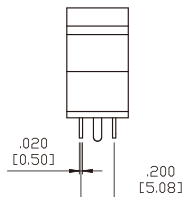
M6 Three Pole



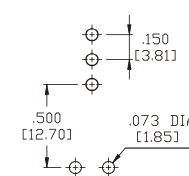
P.C.MOUNTING



M7 Single Pole



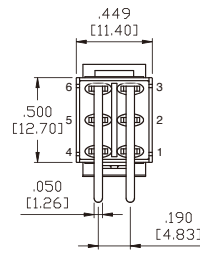
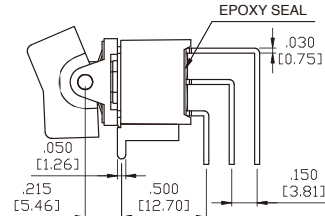
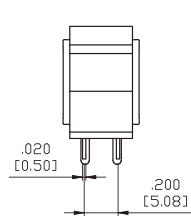
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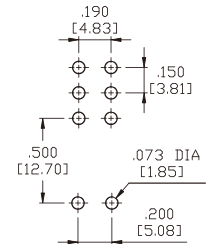
1MS-Series Dimensional Specifications: in. [mm]

Termination Options

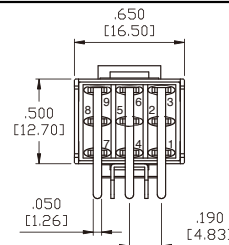
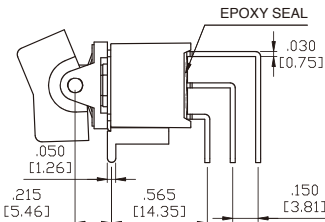
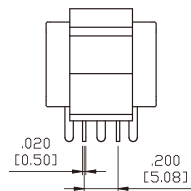
M7 Double Pole



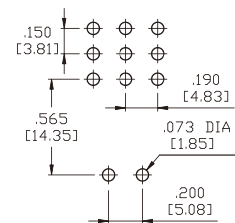
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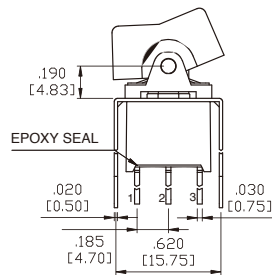
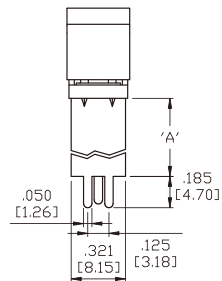
M7 Three Pole



P.C.MOUNTING

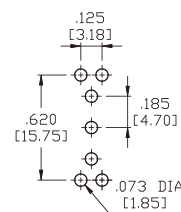


VS2-VS3 Single Pole

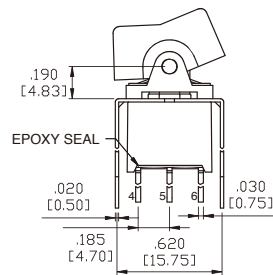
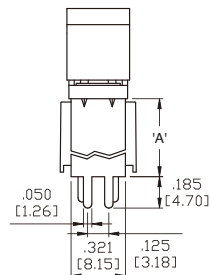


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VS3	.630 [16.00]

P.C.MOUNTING

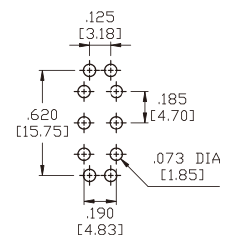


VS2-VS3 Double Pole

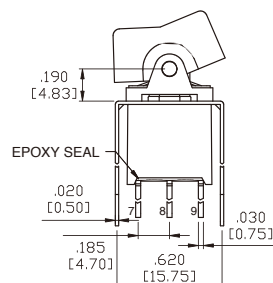
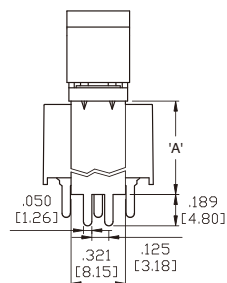


OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

P.C.MOUNTING

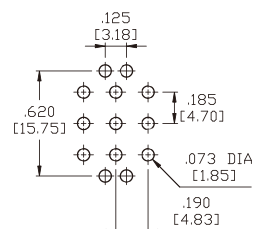


U2-VS3 Three Pole



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VS3	.630 [16.00]

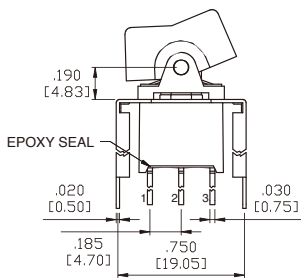
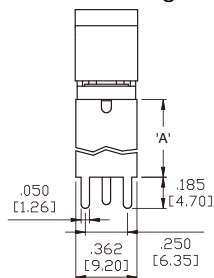
P.C.MOUNTING



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

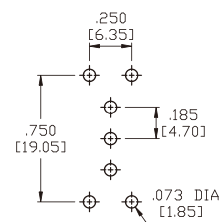
Termination Options

VS4-VS5 Single Pole

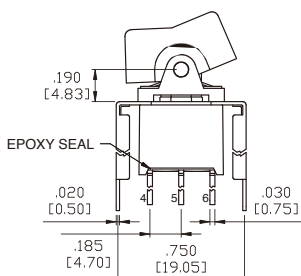
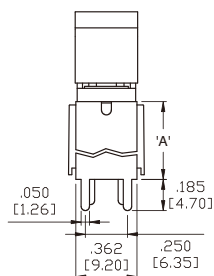


OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

P.C.MOUNTING

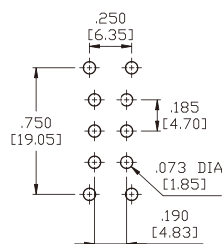


VS4-VS5 Double Pole

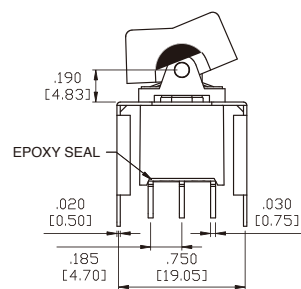
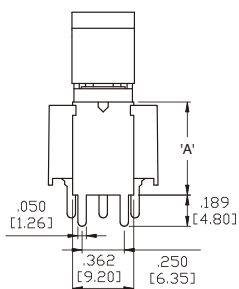


OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

P.C.MOUNTING

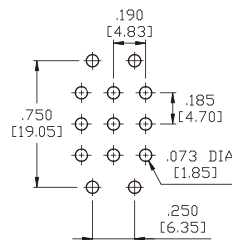


U4-VS5 Three Pole



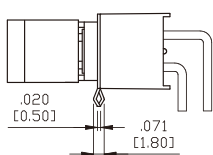
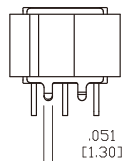
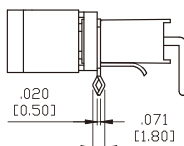
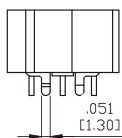
OPTION CODE	DIM.'A'
U4	.551 [14.00]
VS5	.630 [16.00]

P.C.MOUNTING

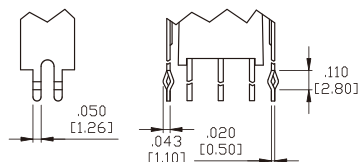


Snap-In Termination Options

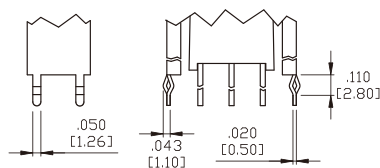
M61



VS21, VS31



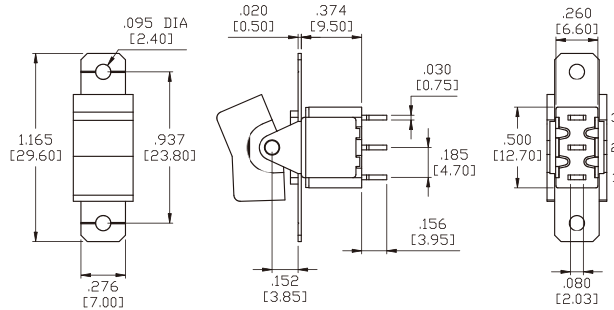
VS41, VS51



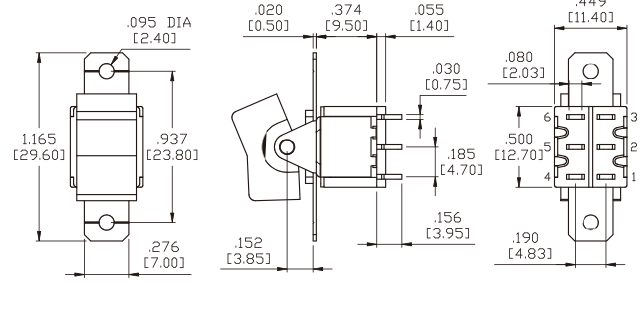
* PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.

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

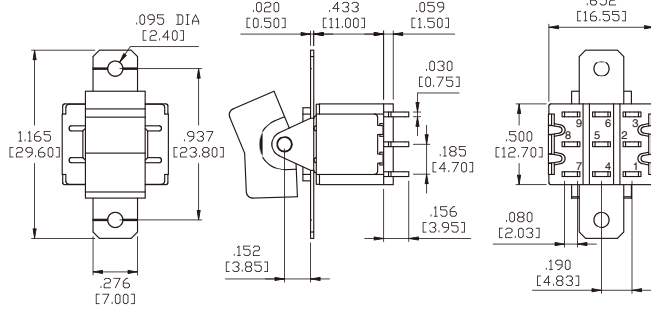
Single Pole



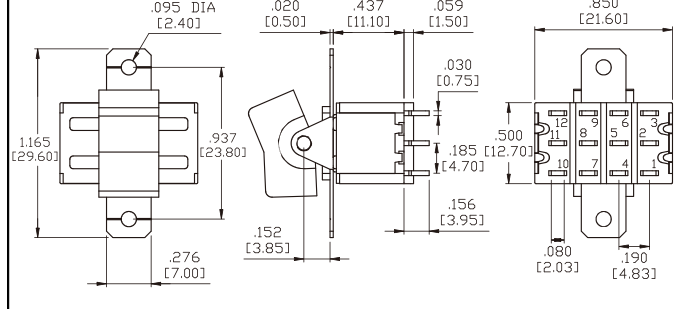
Double Pole



Three Pole

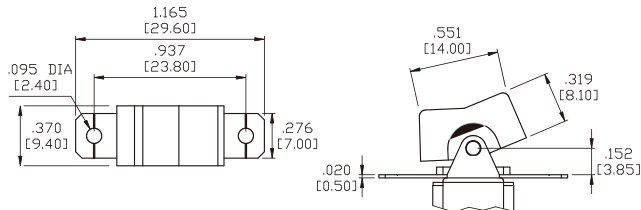


Four Pole

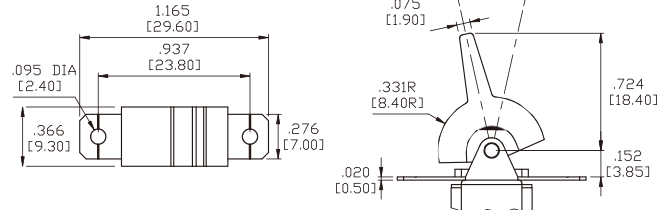


Actuator Options for Panel Rear Mount

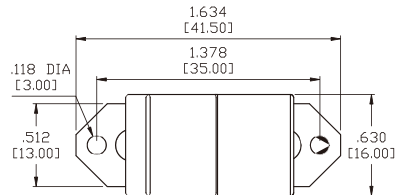
R1



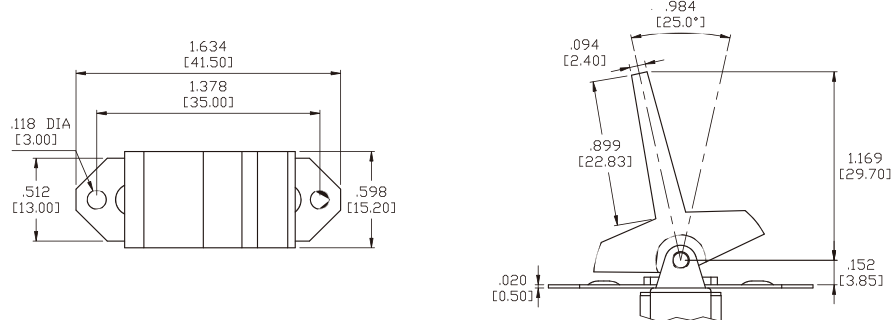
R2



R3



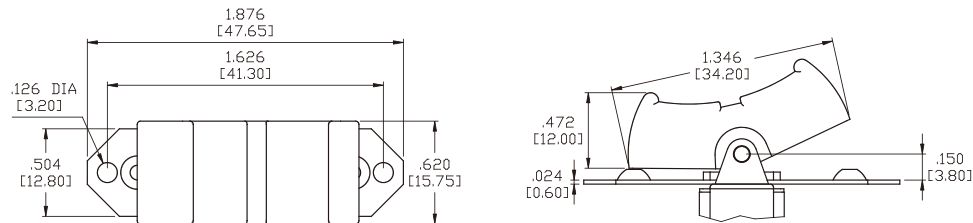
R4



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

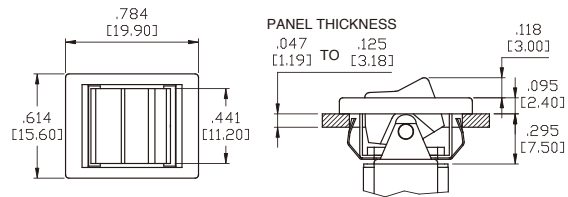
Actuator Options for Panel Rear Mount

R5

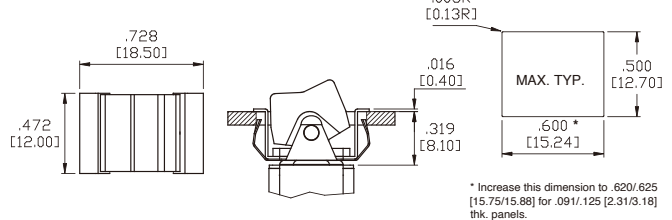


Actuator Options for Snap-In Mount

R6

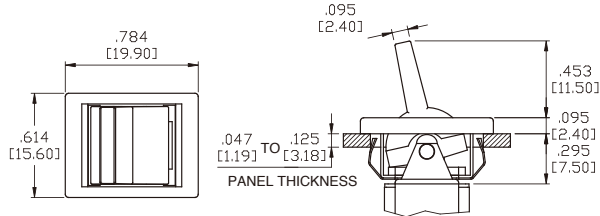


R6 WITHOUT FRAME

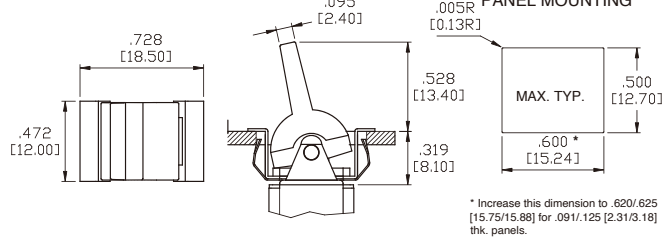


* Increase this dimension to .620/.625 [15.75/15.88] for .091/.125 [2.31/3.18] thk. panels.

R7



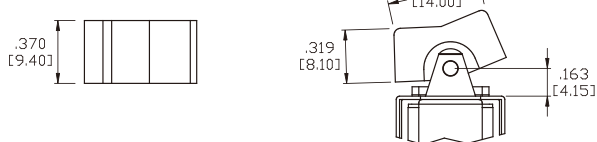
R7 WITHOUT FRAME



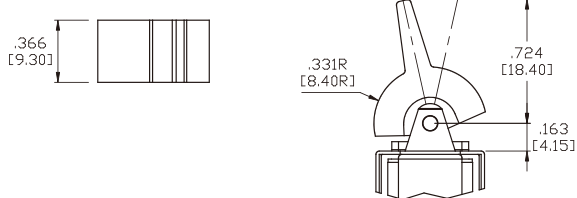
* Increase this dimension to .620/.625 [15.75/15.88] for .091/.125 [2.31/3.18] thk. panels.

Actuator Options for PC Mount

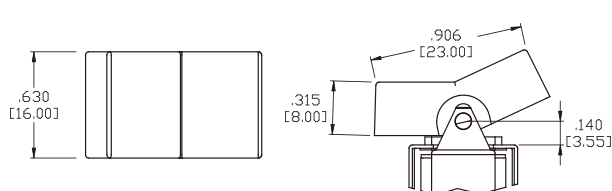
R1



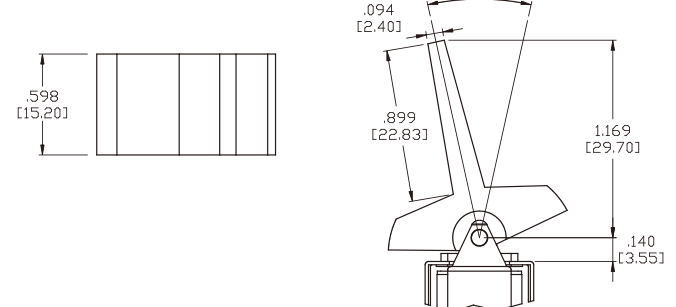
R2



R3

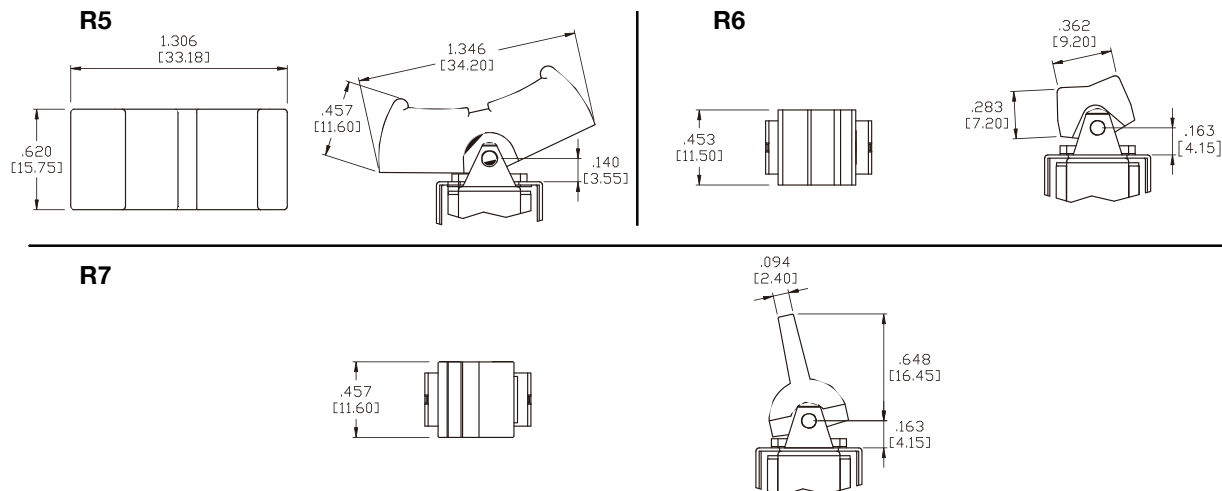


R4



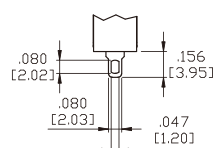
1M1-Series Dimensional Specifications: in. [mm]

Actuator Options for PC Mount



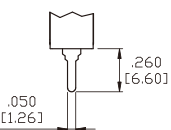
Termination Options

M1 Standard Solder Lug



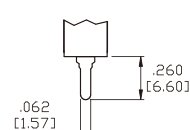
THK .030 [0.75]

M2 PC Thru-Hole



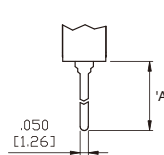
THK .030 [0.75]

M3 Quick Connect



THK .030 [0.75]

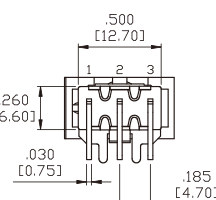
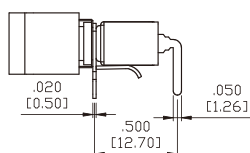
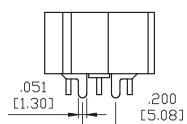
M5 Wire Wrap



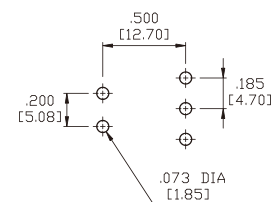
THK .030 [0.75]

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]

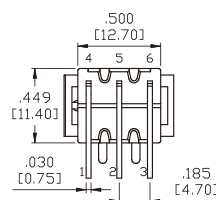
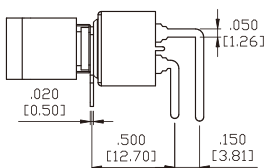
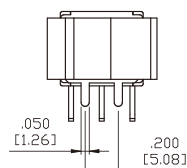
M6 Single Pole



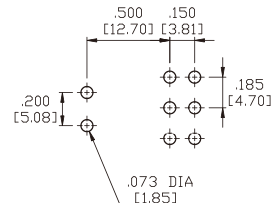
P.C.MOUNTING



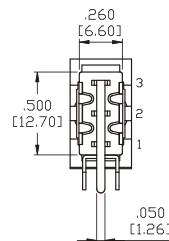
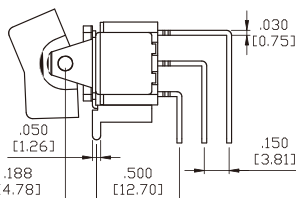
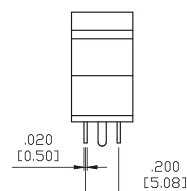
M6 Double Pole



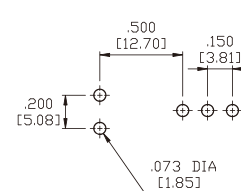
P.C.MOUNTING



M7 Single Pole



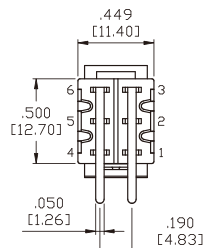
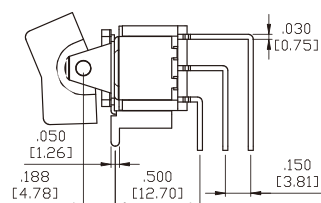
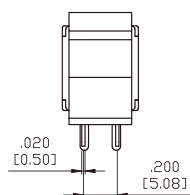
P.C.MOUNTING



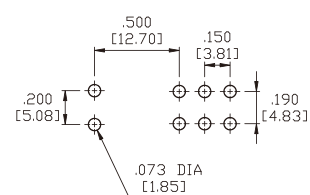
1M1-Series Dimensional Specifications: in. [mm]

Termination Options

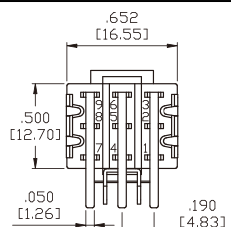
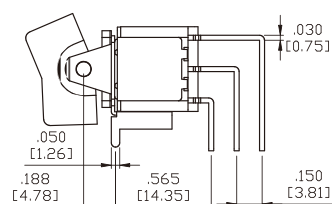
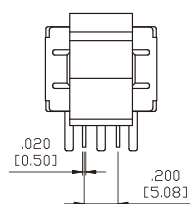
M7 Double Pole



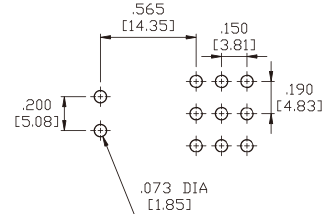
P.C.MOUNTING



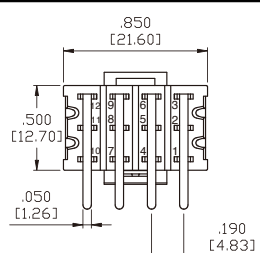
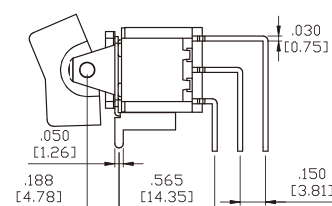
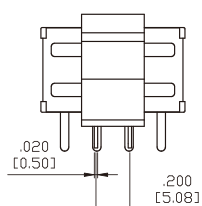
M7 Three Pole



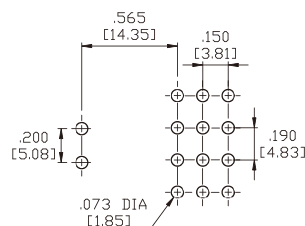
P.C.MOUNTING



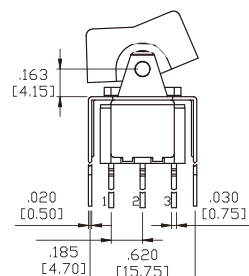
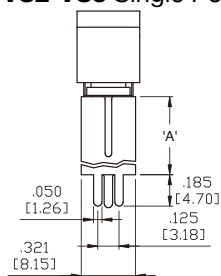
M7 Four Pole



P.C.MOUNTING

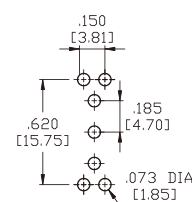


VS2-VS3 Single Pole

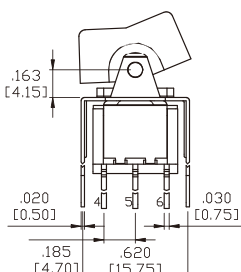
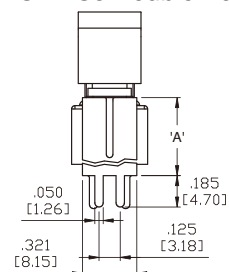


OPTION CODE	DIM.'A'
VS2	.461 [11.70]
VS3	.630 [16.00]

P.C.MOUNTING

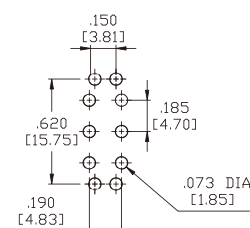


VS2-VS3 Double Pole



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

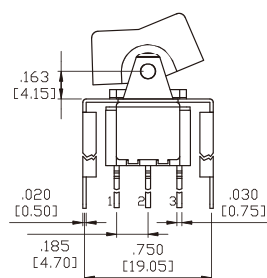
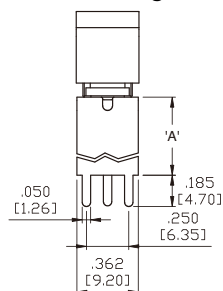
P.C.MOUNTING



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

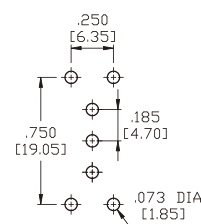
Termination Options

VS4-VS5 Single Pole

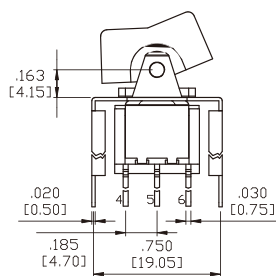
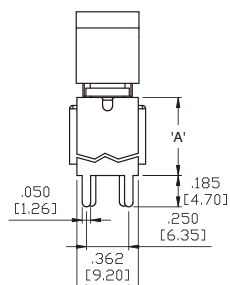


OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

P.C.MOUNTING

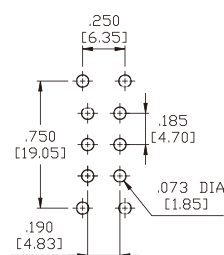


VS4-VS5 Double Pole

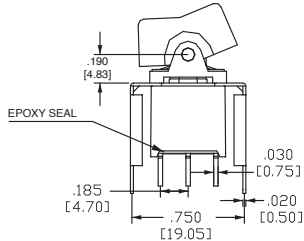
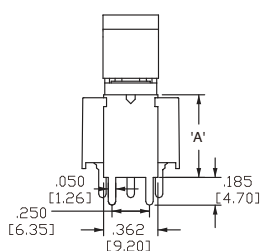


OPTION CODE	DIM.'A'
VS4	.461 [11.70]
VS5	.630 [16.00]

P.C.MOUNTING

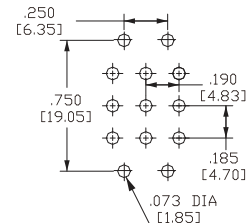


U4-VS5 Three Pole



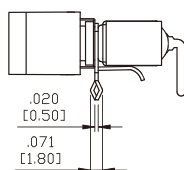
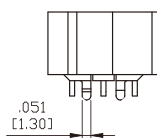
OPTION CODE	DIM.'A'
U4	.551 [14.00]
VS5	.630 [16.00]

P.C.MOUNTING

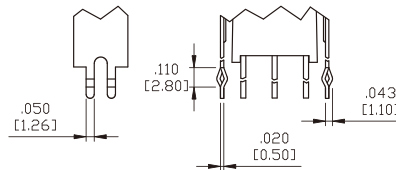


Snap-In Termination Options

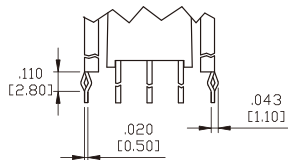
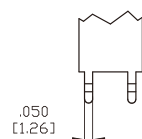
M61



VS21, VS31



VS41, VS51



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

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