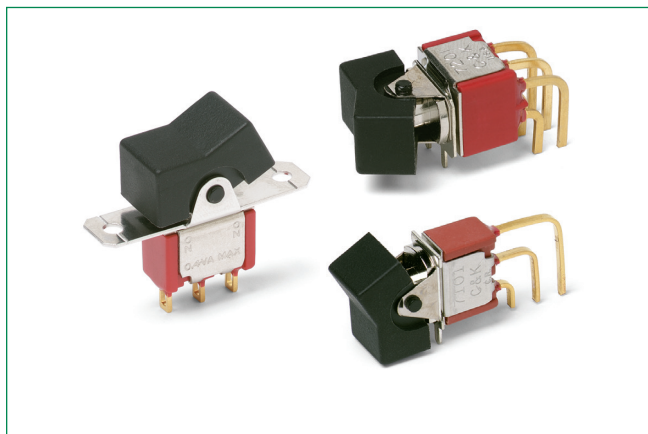


7000 Series

Miniature Rocker & Lever Handle Switches



Description

The 7000 series miniature rocker and lever handle switches are multi-pole and multi-position, have a wide variety of actuator and termination options available and use epoxy terminal-seal that's compatible with bottom wash cleaning. Product designers in the telecommunications, instrumentation and medical equipment industries turn to the 7000 series switches because of their reputation for quality and performance even in the face of harsh environments.

Features & Benefits

- Multi-pole and multi-position
- Wide variety of actuator and termination options
- Epoxy terminal-seal compatible with bottom wash cleaning
- RoHS compliant

Agency Approvals

Agency	Agency File Number
	E42363

Applications

- Telecommunications
- Instrumentation
- Medical equipment

Specifications

Contact Rating	B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: 5 amps @ 120 V AC or 28 V DC; 2 amps @ 250 V AC. See page 21 for additional ratings.
Electrical Life	7X01 and UX1 models: 100,000 make-and-break cycles at full load. All other models: 40,000 cycles.
Contact Resistance	Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.
Insulation Resistance	10 ⁹ Ω min.
Dielectric Strength	1000 Vrms min. @ sea level.
Operating Temperature	-30°C to 85°C
Solderability	Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

Notes:

Any models supplied with S, P, R, Q, B or G contact material are RoHS compliant. Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

Case	Glass filled nylon 6/6, flame retardant, heat stabilized, or diallyl phthalate (DAP) (UL 94 V-0).
Actuator	Nylon, black.
Frame (Front Mount)	Spring steel, black.
Frame (Rear Mount)	Brass or zinc, nickel plated.
Bushing	Stainless steel
Switch Support	Brass or steel, matte-tin plated.
End Contacts	B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page 21 for additional contact materials.
Center Contacts & All Terminals	B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page 21 for additional contact materials.
Terminal Seal	Epoxy. Refer to Soldering and Cleaning in Technical Data Section
Hardware	Mounting nuts & screws: Brass. Lockwasher: Stainless steel. Standoff: Nylon standard.

7000 Series

Miniature Rocker & Lever Handle Switches



Ordering Number

To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult our Customer Service Center.

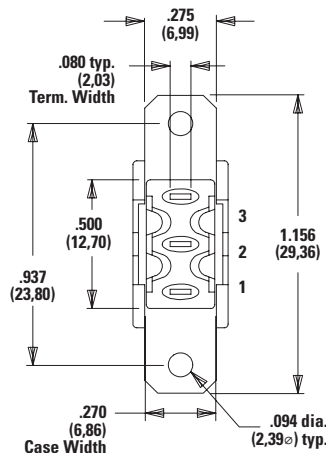
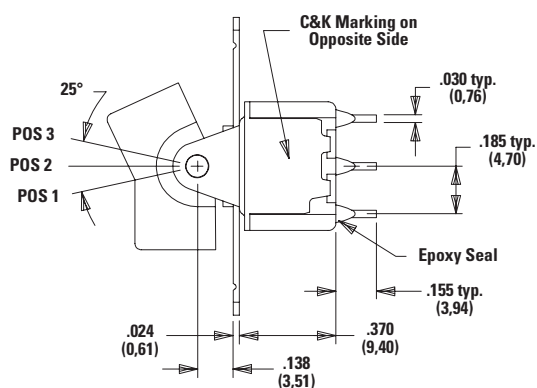
7xxx - xxx - xxx - x - x - x - x						
Switch Function	Actuator	Terminations	Actuator Color	Seal	Contact Material	Frame Color
7101: SP On-None-On 7105: SP Mom.-Off-Mom. 7201: DP On-None-On 7203: DP On-Off-On 7205: DP Mom.-Off-Mom. 7301: 3P On-None-On 7401: 4P On-None-On 7411: 4P On-On-On	J1: 0.531 long rocker J3: 0.906" long rocker J11: Rocker with frame J16: Rocker with frame, snap-in J19: Rocker with frame J26: Lever with frame, snap-in J37: Rocker with frame J50: Rocker J51: Rocker with frame J60: Lever J61: Lever with frame, snap-in J90: Lever	A: Right angle, PC thru-hole AV2: Vertical right angle, PC thru-hole C: PC Thru-hole Z: Solder lug V3: 0.460" high, V-bracket V4: 0.630" high, V-bracket V6: 0.460" high, V-bracket Z3: Quick connect	2: Black 1: White 3: Red	E: Epoxy I: Epoxy potted base	B: Gold Q: Silver G: Gold over silver	2: Black NONE: No frame color required 1: White

Notes:

- J11 actuator is available with metal frame and black color only, J16, J26, J51 and J61 actuators with plastic frame, both have black and white color options.
- J37 actuator with metal frame, with black color only.
- J50, J60 and J90 actuators with no frame color required.

Switch Function SPDT

No. Poles	Model No.	UL Model No. ²	Switch Function			Connected Terminals			Schematic
			C&K marking on opposite side						
			POS. 1 	POS. 2 	POS. 3 	POS. 1 	POS. 2 	POS. 3 	
SP	7101	U11	ON	NONE	ON	2-3	N/A	2-1	SPDT 



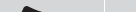
Terminal Nos. For Reference Only

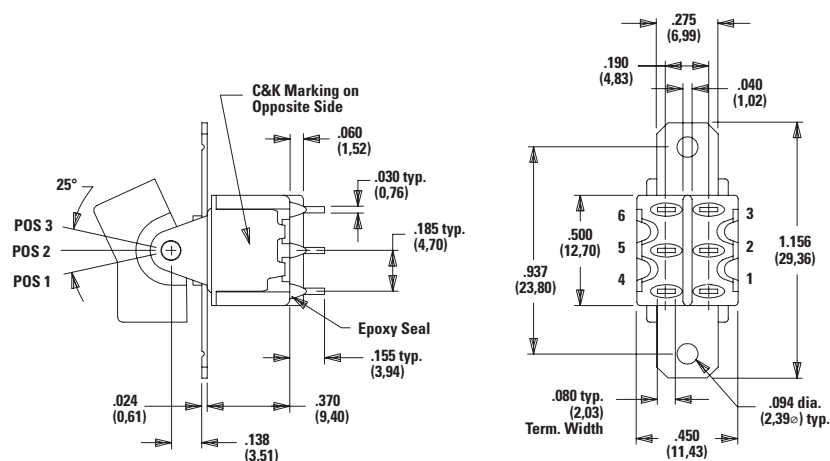
7000 Series

Miniature Rocker & Lever Handle Switches



DPDT

No. Poles	Model No.	UL Model No. ²	Switch Function			Connected Terminals			Schematic
			C&K marking on opposite side						
			POS. 1 	POS. 2 	POS. 3 	POS. 1 	POS. 2 	POS. 3 	
DP	7201	U21	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	7203	U23	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	7205	U25	MOM	OFF	MOM.	2-3,5-6	OPEN	2-1,5-4	



Part number shown: 7201J1ZQE2

Terminal Nos. For Reference Only

Notes: MOM. = Momentary

1. Wiring for 3-way switch

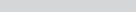
2. U11 through U411 model nos. us with all options when ordered with G, or Q contact material.

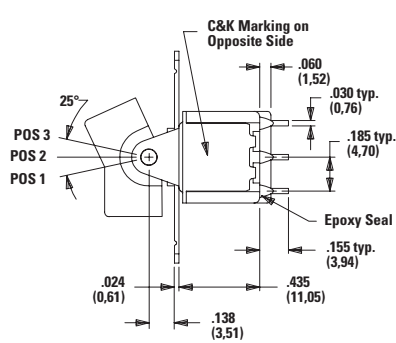
7000 Series

Miniature Rocker & Lever Handle Switches

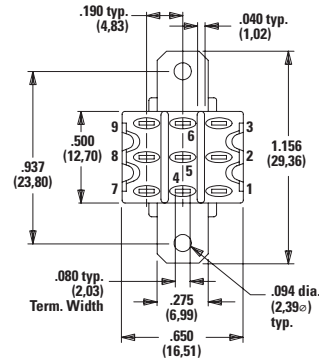


3PDT

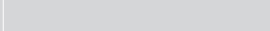
No. Poles	Model No.	UL Model No. ²	Switch Function			Connected Terminals			Schematic
			C&K marking on opposite side						
			POS. 1 	POS. 2 	POS. 3 	POS. 1 	POS. 2 	POS. 3 	
3P	7301	U31	ON	NONE	ON	2-3,5-6,8-9	N/A	2-1,5-4,8-7	

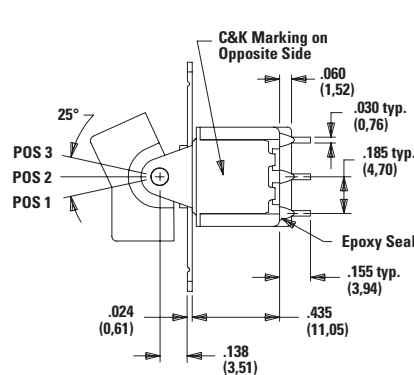


Part number shown: 7301J1ZQE2

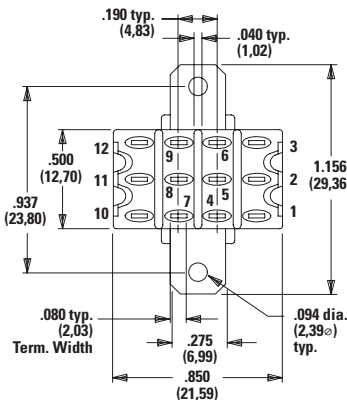
Terminal Nos.
For Reference Only

4PDT

No. Poles	Model No.	UL Model No. ²	Switch Function			Connected Terminals			Schematic
			C&K marking on opposite side						
			POS. 1 	POS. 2 	POS. 3 	POS. 1 	POS. 2 	POS. 3 	
4P	7401	U41	ON	NONE	ON	2-3,5-6,8-9,11-12	N/A	2-1,5-4,8-7,11-10	
	7411	U411 ¹	ON	ON	ON	2-3,5-6,8-9,11-12	2-3, 5-4, 8-9, 11-10	2-1,5-4,8-7,11-10	



Part number shown: 7401J1ZQE2

Terminal Nos.
For Reference Only

Notes: MOM. = Momentary

1. Wiring for 3-way switch. See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

2. U11 through U411 model nos. us with all options when ordered with G or Q contact material.

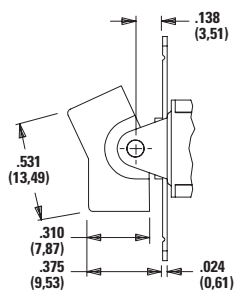
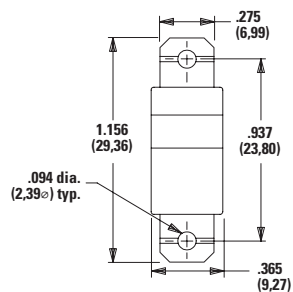
7000 Series

Miniature Rocker & Lever Handle Switches

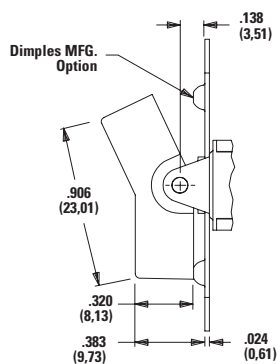
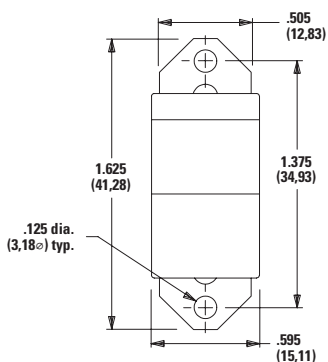


Actuator-Panel Rear Mount

J1 Rocker

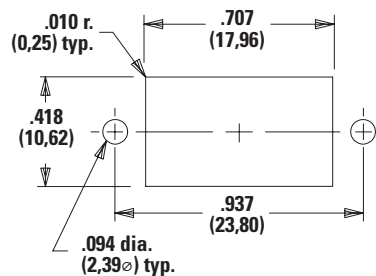


J3 Rocker

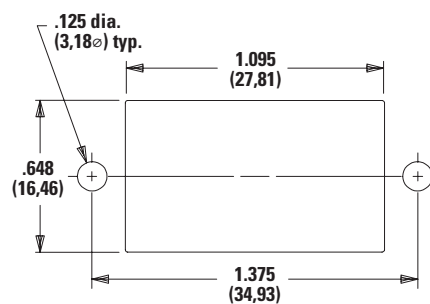


Panel Mounting

J1 Actuator



J3 Actuator



Option Code	Actuator Color
2	Black
1	White
3	Red

Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

Notes: Hardware: two each—mounting screws, nuts, lockwashers and standoffs for 1/8 inch thick panel are supplied standard on all switches with panel mounting brackets. Actuators available separately, see page 22-24. Hardware is available see Technical Data section of this catalog. J1, J2, J3 & J10 Actuators available with C, W-W5, Z or Z3 terminations.

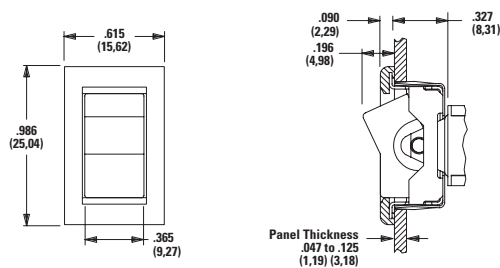
7000 Series

Miniature Rocker & Lever Handle Switches

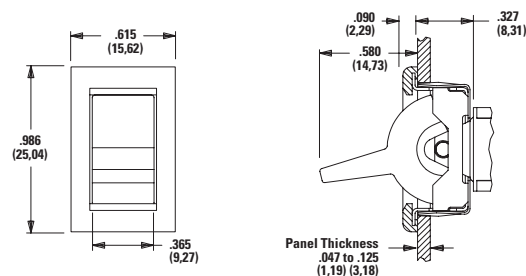


Actuator-Panel Front Mount

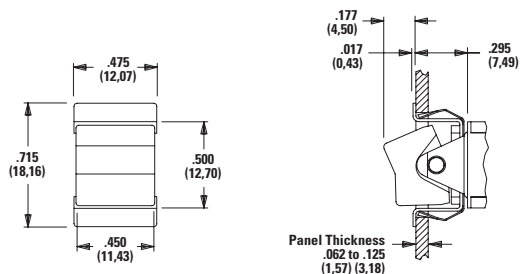
J16 Rocker with Frame, Snap-in



J26 Lever with Frame, Snap-in



J50 Rocker, Snap-in



No frame color choice required

Option Code	Actuator Color
2	Black
1	White
3	Red

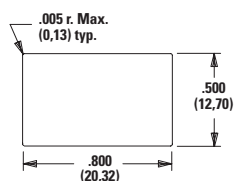
Option Code	Frame Color
2	Black
None	No Frame Color (J15 or J25 options)
1	White

Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

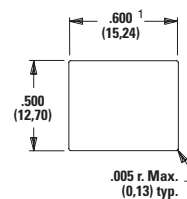
Notes: Actuators & frames available separately, see pages G-21 through G-22. J15, J16, J25, J26, J50 & J51 Actuators available with 71XX, 72XX, U1XX & U2XX models and C, W-W5, Z and Z3 terminations.

Panel Mounting

J16 & J26 Actuators



J50 Actuator



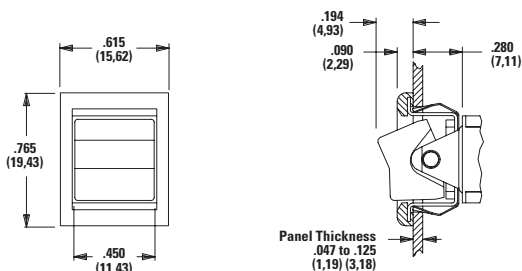
1. For J50: Increase this dimension to 0.620/0.625 (15.75/15.88) for 0.091/0.125 (2.31/3.18) thk. panels.

7000 Series

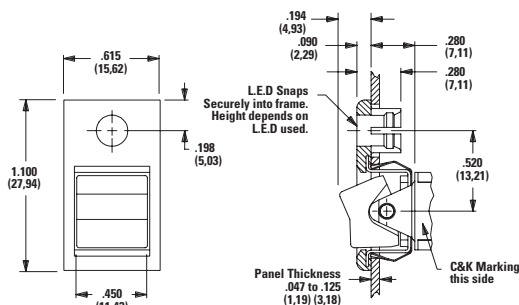
Miniature Rocker & Lever Handle Switches



**J51 Rocker with
Frame, Snap-in**

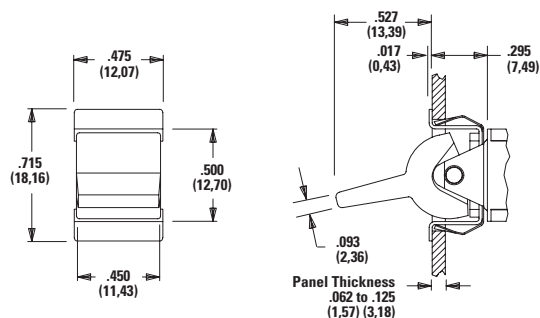


**J52 Rocker with
Frame for LED, Snap-in**



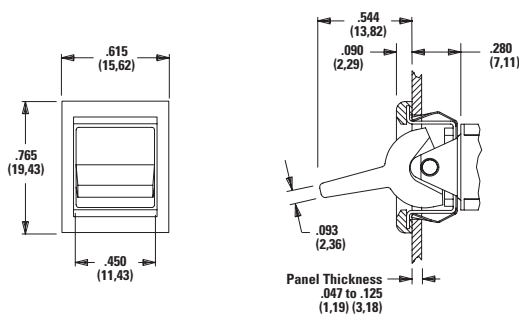
Notes: LED not included. For LED information, see page 24.

**J60 Lever,
Snap-in**



Notes: No frame color choice required

**J61 Lever with
Frame, Snap-in**



Option Code	Actuator Color
2	Black
1	White
3	Red

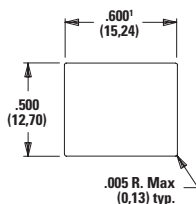
Option Code	Frame Color
2	Black
None	No Frame Color (J50 option)
1	White

Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

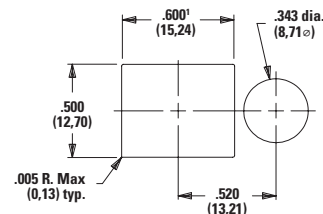
Notes: Actuators & frames available separately, see pages 22-24. J51, J52, J60 & J61 Actuators available with 71XX, 72XX, U1XX & U2XX models and C, W-W5, Z and Z3 terminations.

Panel Mounting

J51, J60 & J61 Actuators



J52 Actuators



Notes:

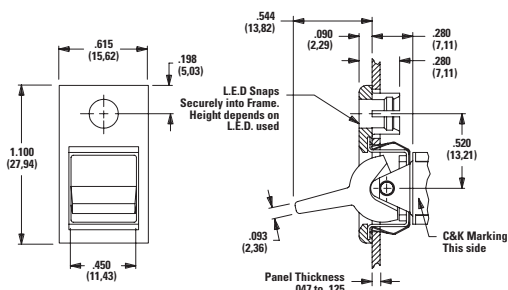
1. For J51, J52: Increase this dimension to 0.620/0.625 (15.75/15.88) for 0.060/0.125 (1.52/3.18) thk. panels.

7000 Series

Miniature Rocker & Lever Handle Switches

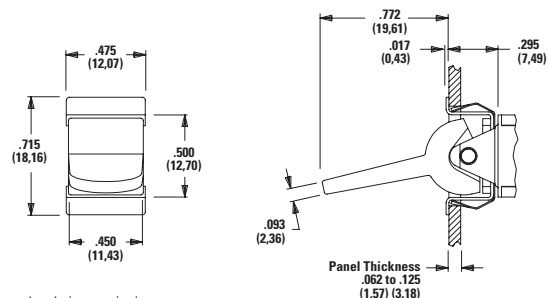


J62 Lever With Frame, For LED, Snap-in



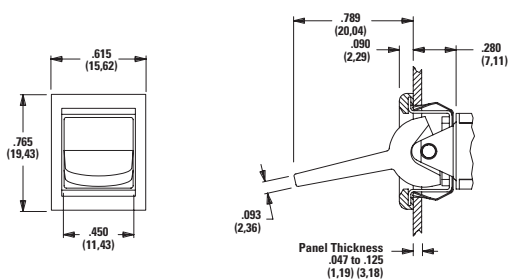
LED not included. For LED information, see page 24.

J90 Lever, Snap-in



No frame color choice required.

J91 Lever with Frame, Snap-in



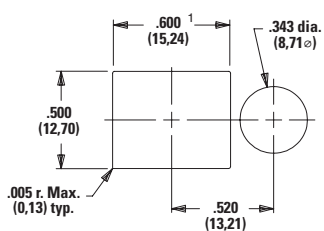
Option Code	Actuator Color
2	Black
1	White
3	Red

Option Code	Frame Color
2	Black
None	No Frame Color (J90 options)
1	White

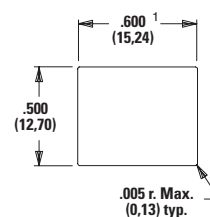
Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

Panel Mounting

J62 Actuator



J90 Actuator



For J90: Increase this dimension to 0.620/0.625 (15.75/15.88) for 0.091/0.125 (2.31/3.18) thk. panels.

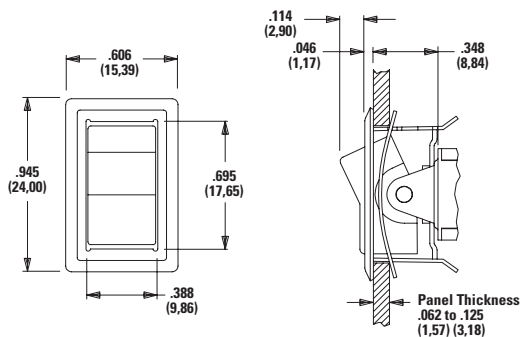
7000 Series

Miniature Rocker & Lever Handle Switches

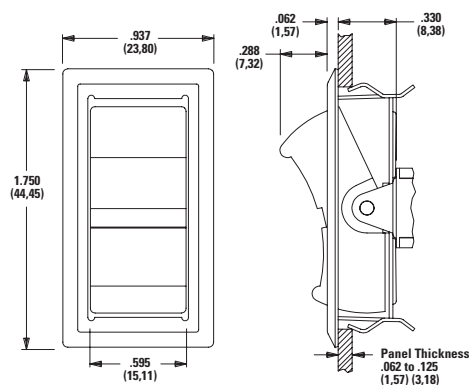


Actuator-Rear Mount

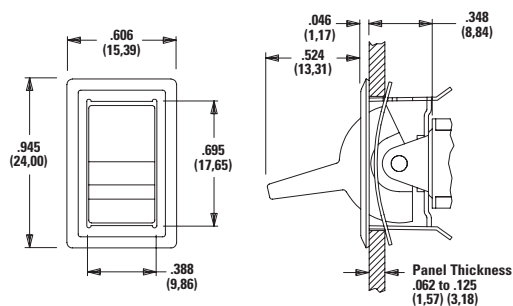
J11 Rocker with Frame



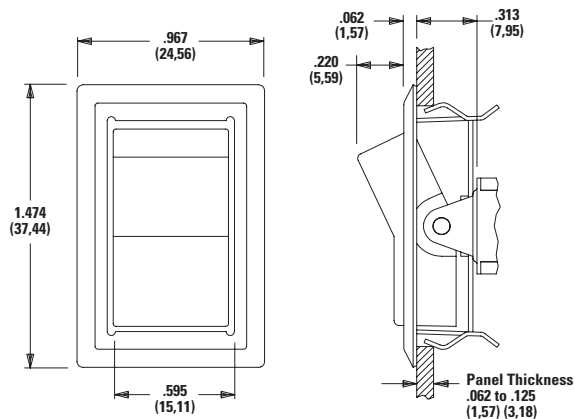
J19 Rocker with Frame



J21 Lever with Frame



J37 Rocker with Frame



Option Code	Actuator Color
2	Black
1	White
3	Red

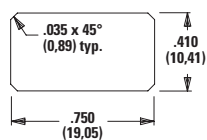
Option Code	Frame Color
2	Black
1	White

Finish: Matte. Frame finish: Gloss. Other colors, custom actuator markings and legends available, consult Customer Service Center.

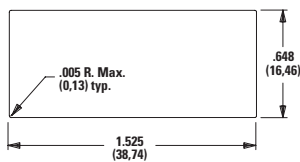
Notes: J11 & J37 Actuators available with C, Z & Z3 terminations. J37 offered with Black Frame only.

Panel Mounting

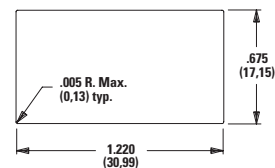
J11 Actuator



J19 Actuator



J37 Actuator



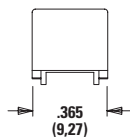
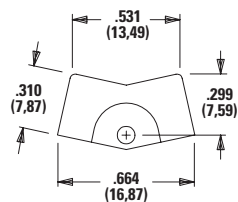
7000 Series

Miniature Rocker & Lever Handle Switches

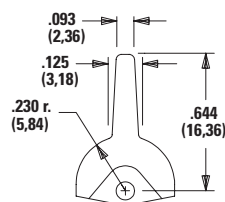


Actuator-PC Mount

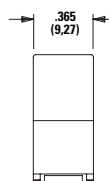
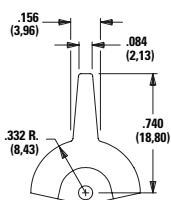
J1 Rocker



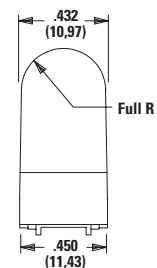
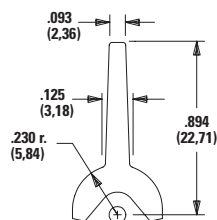
J60 Lever



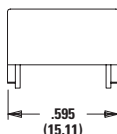
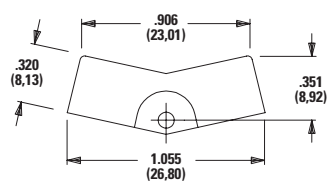
J2 Rocker



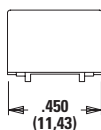
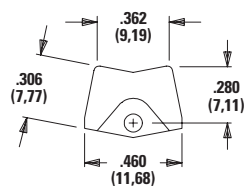
J90 Lever



J3 Rocker



J50 Rocker



Option Code	Actuator Color
2	Black
1	White
3	Red

Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

Notes: Some permissible actuator/termination combinations may lack clearance between actuator and PC board, and care must be exercised to accommodate this condition.

See page 22-24. J60 & J90 actuators available with A (DP, 3P models only), & V3-V6 terminations.

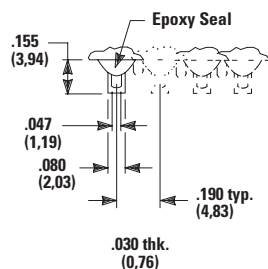
7000 Series

Miniature Rocker & Lever Handle Switches



Terminations

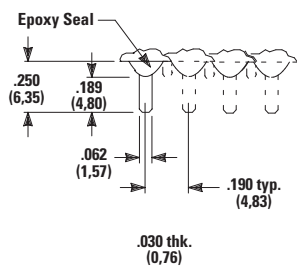
Z Solder Lug



SPDT thru 4PDT

Not available with P, R or S contact materials. Available actuators, see pages 6-11.

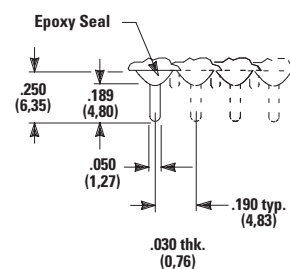
Z3 Quick Connect



SPDT thru 4PDT

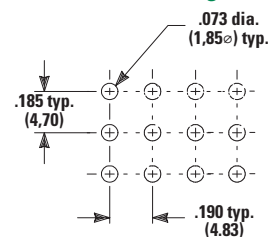
Not available with P, R or S contact materials. Available actuators, see pages 6-11. Mating quick connector available; order part number 530100000, page 23

C PC Thru-hole



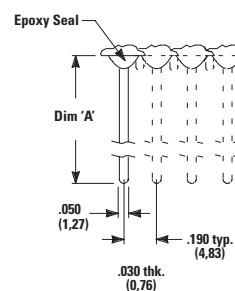
SPDT thru 4PDT

PC Mounting



Notes: Available actuators, see pages 6-11.

W, W3, W5 Wire Wrap



SPDT thru 4PDT

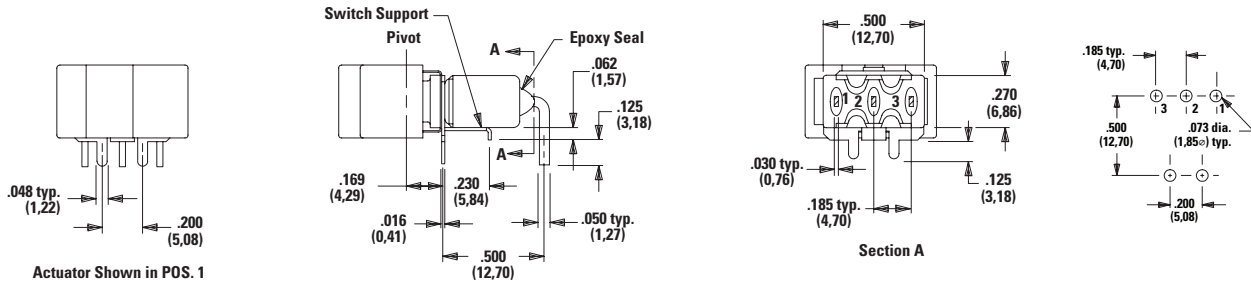
Option Code	DIM 'A'
W	.750 (19,05)
W3	.425 (10,80)
W5	1.305 (33,15)

7000 Series

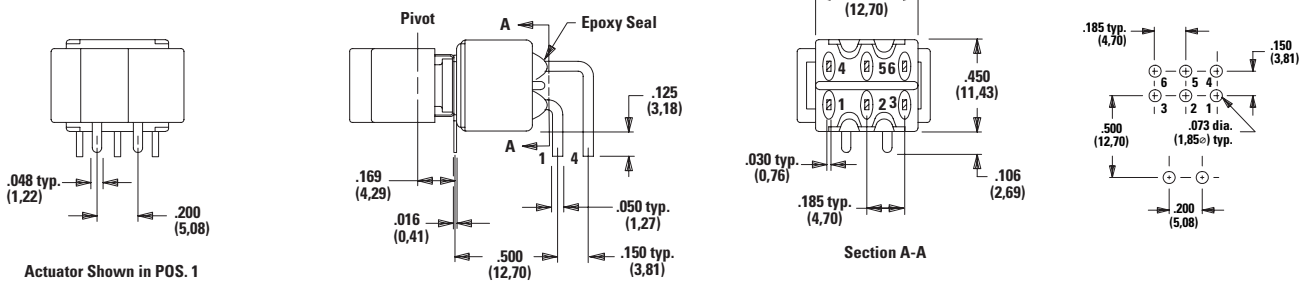
Miniature Rocker & Lever Handle Switches



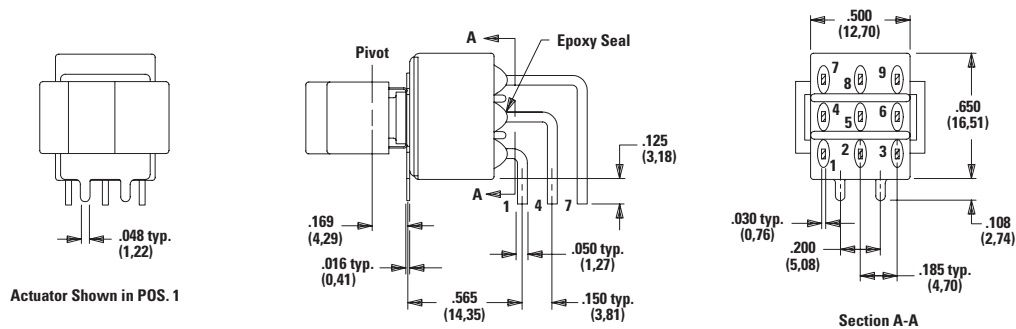
A Right Angle, PC Thru-hole 7101J1ABE2 Horizontal Actuation SPDT



A Right Angle, PC Thru-hole 7201J1ABE2 Horizontal Actuation DPDT

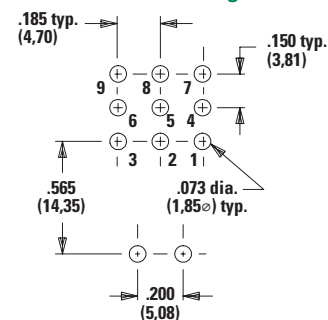


A Right Angle, PC Thru-hole 7301J1ABE2 Horizontal Actuation 3PDT



Not available with I seal option. Available actuators, see pages 5-10. Terminal bend radii and lead-in manufacturing option.

PC Mounting

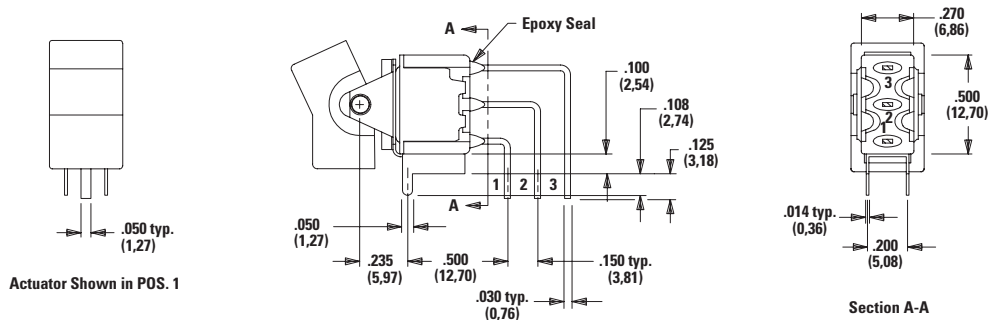


7000 Series

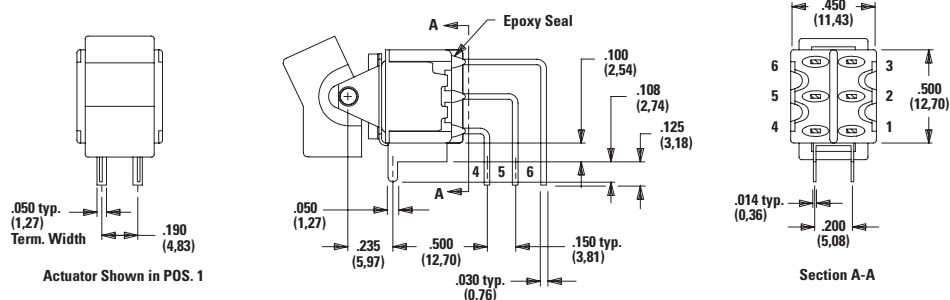
Miniature Rocker & Lever Handle Switches



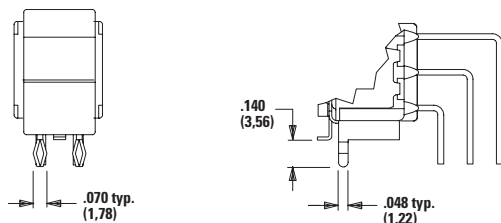
AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch 7101J1AV2BE2 Vertical Actuation SPDT



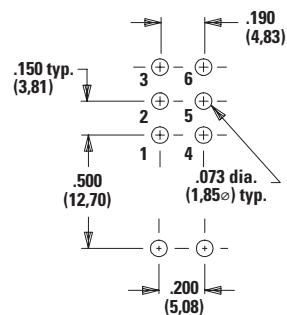
AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch 7201J1AV2BE2 Vertical Actuation DPDT



AV3 Vertical Right Angle, Snap-in PC Thru-hole, 0.150" Pitch



PC Mounting



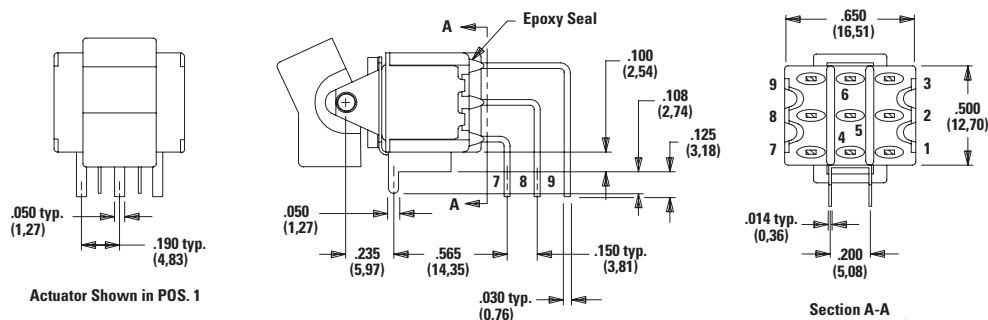
Not available with I seal option. Available actuators, see pages 5-10. Terminal bend radii and lead-in manufacturing option.

7000 Series

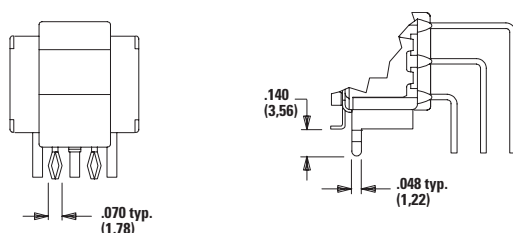
Miniature Rocker & Lever Handle Switches



AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch 7301J1AV2BE2 Vertical Actuation 3PDT

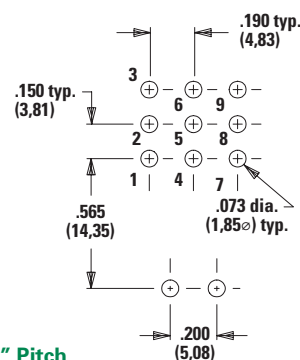


AV3 Vertical Right Angle, Snap-in PC Thru-hole, 0.150" Pitch

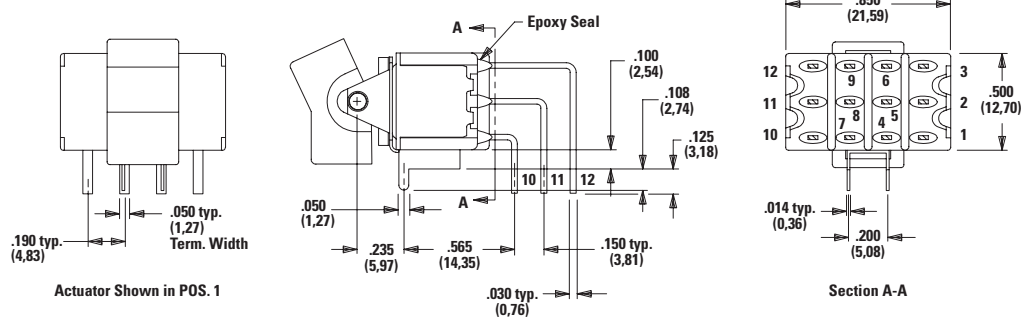


Not available with I seal option. Available actuators, see pages 5-10. Terminal bend radii and lead-in manufacturing option.

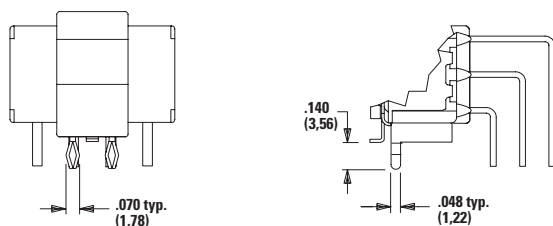
PC Mounting



AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch 7401J1AV2BE2 Vertical Actuation 4PDT

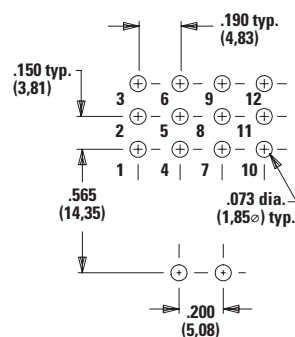


AV3 Vertical Right Angle, Snap-in PC Thru-hole, 0.150" Pitch



Not available with I seal option. Available actuators, see pages 5-10. Terminal bend radii and lead-in manufacturing option.

PC Mounting



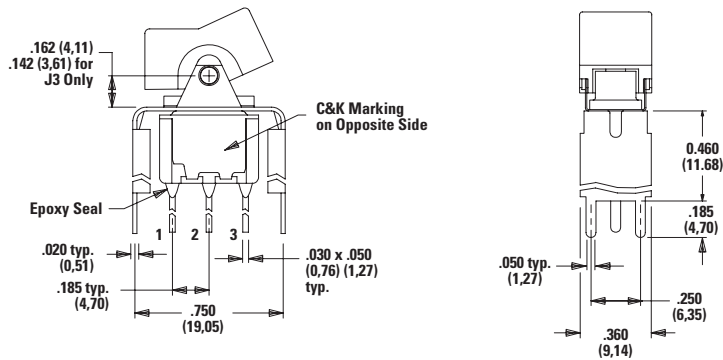
7000 Series

Miniature Rocker & Lever Handle Switches



V6 Vertical Mount

7101J1_BE2 SPDT

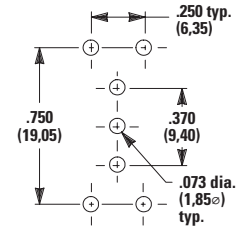


Actuator Shown in POS. 1

Not available with I seal option. Available actuators, see pages 5-10.

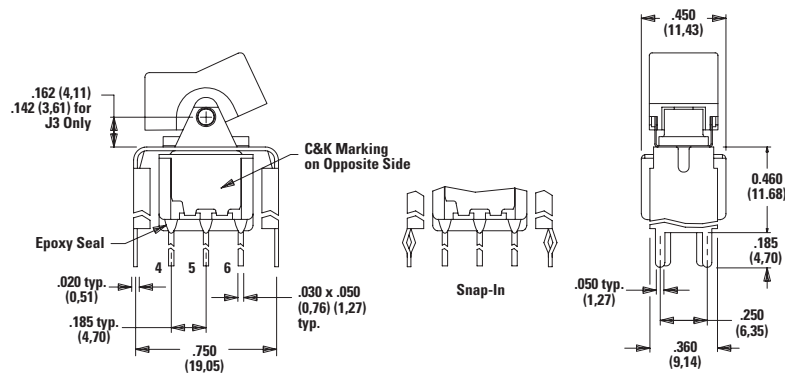
Option Code	DIM 'A'
V2, V21	0.555 (14.10)
V6, V61	0.460 (11.68)
V7	0.630 (16.00)
V8	0.953 (24.21)

PC Mounting



V6 Vertical Mount

7201J1_BE2 DPDT

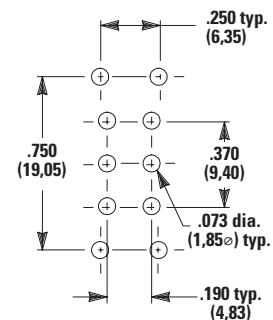


Actuator Shown in POS. 1

Not available with I seal option.

Option Code	DIM 'A'
V2, V21	0.555 (14.10)
V6, V61	0.460 (11.68)
V7	0.630 (16.00)
V8	0.953 (24.21)

PC Mounting



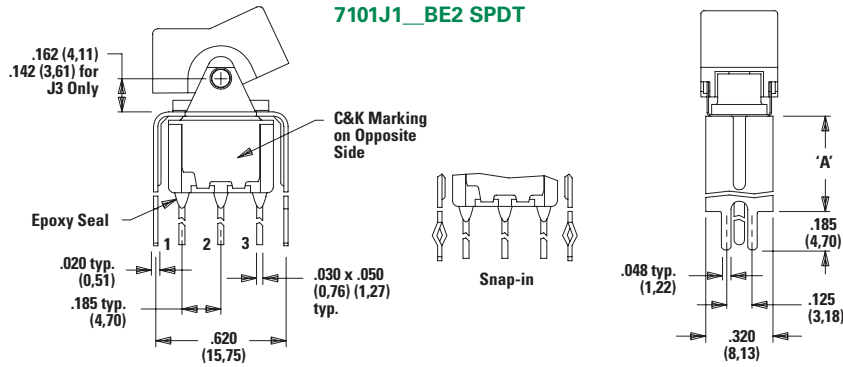
7000 Series

Miniature Rocker & Lever Handle Switches



V3 & V4 Vertical Mount, V Bracket

7101J1_BE2 SPDT

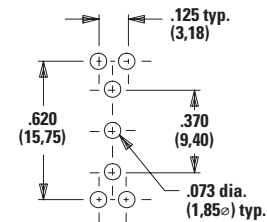


Actuator Shown in POS.1

Not available with I seal option. Available actuators, see pages 5-10.

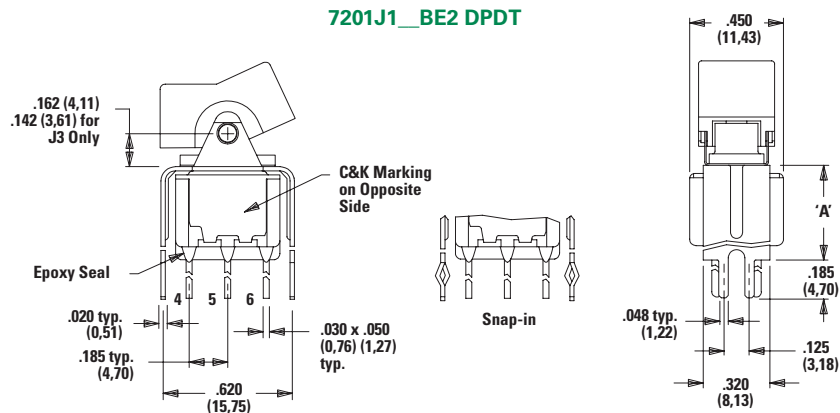
Option Code	DIM 'A'
V3	0.460 (11.68)
V4	0.630 (16.00)

PC Mounting



V3 & V4 Vertical Mount, V Bracket V31 Vertical Mount, V Bracket, Snap-in

7201J1_BE2 DPDT

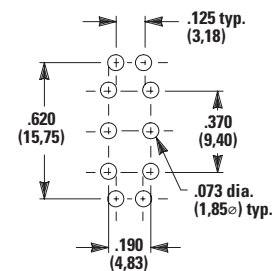


Actuator Shown in POS. 1

Not available with I seal option. Available actuators, see pages 5-10.

Option Code	DIM 'A'
V3	0.460 (11.68)
V4	0.630 (16.00)

PC Mounting



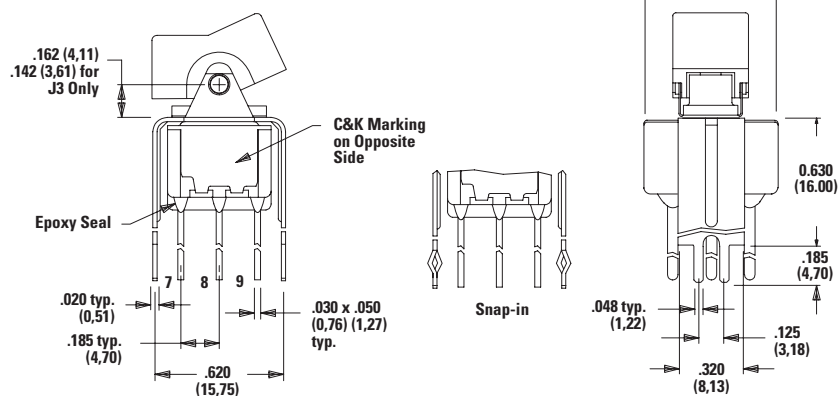
7000 Series

Miniature Rocker & Lever Handle Switches



V4 Vertical Mount, V Bracket

7301J1_BE2 3PDT

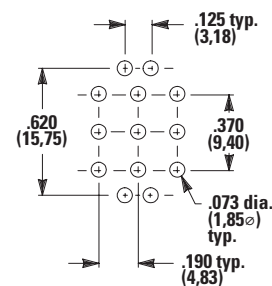


Actuator Shown in POS. 1

Not available with I seal option.

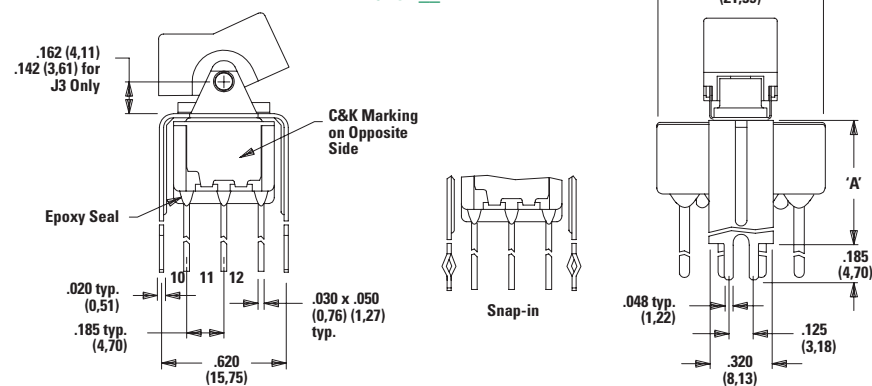
Option Code	DIM 'A'
V4	0.630 (16.00)
V9	1.150 (29.21)

PC Mounting



V4 Vertical Mount, V Bracket

7401J1_BE2 4PDT

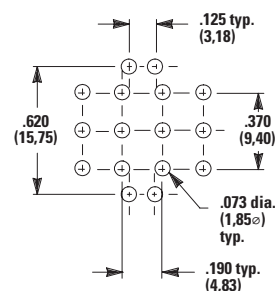


Actuator Shown in POS.1

Not available with I seal option. Available actuators, see pages 5-10.

Option Code	DIM 'A'
V4	0.630 (16.00)

PC Mounting



7000 Series

Miniature Rocker & Lever Handle Switches



Contact Material

Option Code	Contact Material	Terminal Plating	Ratings	
B	Gold ¹	Gold ¹	Low Level/Dry Circuit	0.4 VA max. @ 20 V AC or DC max.
Q	Silver ^{4,5}	Silver ⁵	Power	5 amps @ 120 V AC or 28 V DC; 2 amps @ 250 V AC.
G	Gold over Silver ^{2,3}	Gold ³	Low Level/Dry Circuit or Power	0.4 VA max. @ 20 V AC or DC max. or 5 amps @ 120 V AC or 28 V DC; 2 amps @ 250 V AC.

Notes: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

1. Contacts & Terminals: Copper alloy, with gold plate over nickel plate.

2. End Contacts: Coin silver, with gold plate over nickel plate.

3. Center Contact & All Terminals: Copper alloy, with gold plate over nickel plate.

4. END CONTACTS: Coin silver, silver plated.

5. Center Contact & All Terminals: Copper alloy, silver plated.

6. Terminals: Copper alloy, with matte-tin over nickel plate.

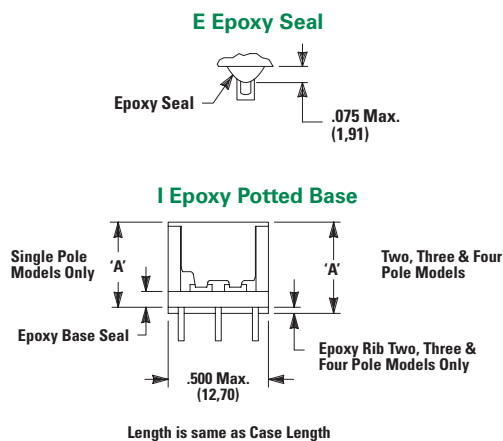
U11 model numbers **CALUS** with all options when ordered with G, Q, S & R contact material.

B contact material standard with all terminations except C, Z & Z3.

Q contact material standard with C, Z & Z3 terminations.

Any models supplied with Q, B & G contact material are RoHS compliant.

Seal



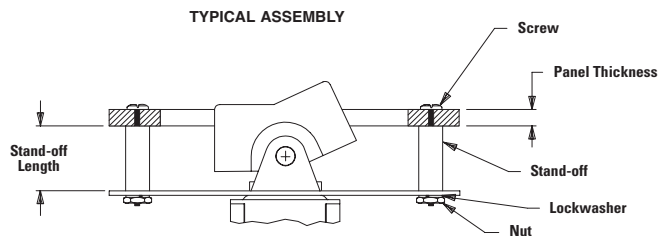
No. Poles	DIM 'A'
SP	0.410 (10.41)
DP	0.440 (11.18)
3P	0.505 (12.83)
4P	

Available Hardware

Panel mounting hardware for rocker and lever handle switches is available separately. Mounting hardware consists of two screws, two nuts, two standoffs and two lockwashers per switch, and is available for panel thicknesses of 1/16, 3/32 and 1/8 inch. See part numbers below.

Quantity	Part Number Description
2	71103000 Standoffs
	764100000 Mounting screws
	764200000 Lock washers
	764300000 Hex nuts

Typical Assembly



7000 Series
Miniature Rocker & Lever Handle Switches



J1 actuator

Part Number	Panel Thk.	Standoff Length
761103000	1/8 IN. (3.18)	0.233 (5.92)

J3 actuators

Part Number	Panel Thk.	Standoff Length
770603000	1/8 IN. (3.18)	0.233 (5.92)

Material
Screws, Nuts, Lockwashers: Stainless Steel. Standoffs: Nylon,Standard.

J1, J11 &
J16 Actuators



Part No.
776A01000 White
776A02263 Black
776A03000 Red
Material: Nylon
Finish: Matte

J26 Actuator



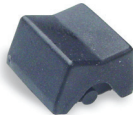
Part No.
426D01000 White
426D02263 Black
426D03000 Red
Material: Nylon
Finish: Matte

J3 & J37 Actuators



Part No.
431D01000 White
431D02263 Black
431D03000 Red
Material: Nylon
Finish: Matte

J50 & J51 Actuators



Part No.
775A01000 White
775A02263 Black
775A03000 Red
Material: Nylon
Finish: Matte

J60 & J61 Actuators



Part No.
598101000 White
613802263 Black
598103000 Red
Material: Nylon
Finish: Matte

7000 Series

Miniature Rocker & Lever Handle Switches



J90 Actuator



Part No.
598001000 White
598002263 Black
598003000 Red
Material: Nylon
Finish: Matte

Frame for J11 Actuator



Part No.
764500746 Black Enamel
764601106 Retaining Spring
Material: Spring Steel

Frame for J16 & J26 Actuators



Part No.
459101000 White
459102000 Black
459103000 Red
Material: Nylon
Finish: Matte

Frame for J51 & J61 Actuators



Part No.
615601000 White
615602263 Black
615603000 Red
Material: Nylon
Finish: Matte

Frame for J37 Actuator



Part No. 445400746 Black Enamel
Material: Spring Steel

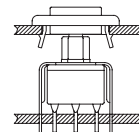
7000 Series

Miniature Rocker & Lever Handle Switches

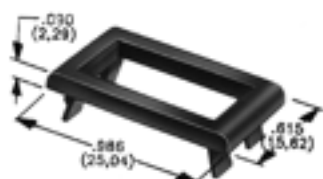


Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses 0.047 - 0.125 in. Material: Nylon, Finish: Matte.

Typical Application



J1 Actuator



0.047" (1.19) Panel THK.
Part No. 452902263

0.062" (1.57) Panel THK.
Part No. 452702263

0.090" (2.29) Panel THK.
Part No. 452802263

0.125" (3.18) Panel THK.
Part No. 452602263 Black

J50, J60 & J90 Actuators



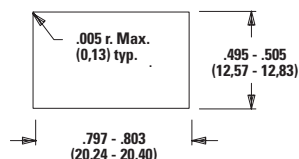
0.047" (1.19) Panel THK.
Part No. 432502263

0.062" (1.57) Panel THK.
Part No. 432602263

0.090" (2.29) Panel THK.
Part No. 432702263

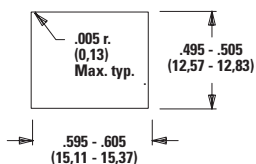
0.125" (3.18) Panel THK.
Part No. 432802263 Black

For Part Numbers
4529xxxxx, 4527xxxxx,
4528xxxxx, 4526xxxxx

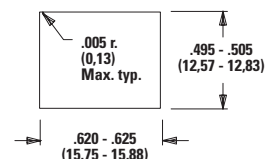


Panel Mounting

For Part Numbers
4325xxxxx, 4326xxxxx

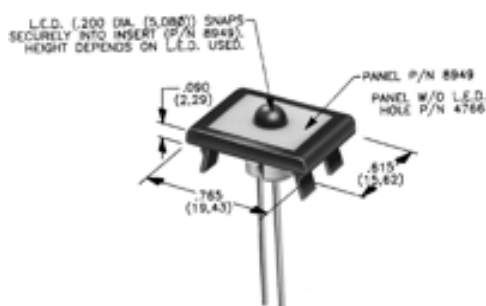


For Part Numbers
4327xxxxx, 4328xxxxx



Above frames (part nos. 432XXXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. LED not included.

Panel Inserts



Will fit separate snap-in frames for J50, J60 & J90 actuators

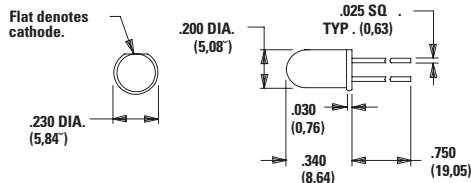
Panel Insert with Hole
for LED

Part No. 894902000

Blank Panel Insert
without Hole for LED

Part No. 476602000 Black

Notes: Special colors, custom markings available, consult Customer Service Center.



LED Information

Process Information: Soldering to LED leads must be completed within 5 seconds at 500° F (260°C) maximum.

LEDs are not supplied with J52, J62 options. LED snaps into switch frame surrounding actuator and is wired externally.

Suggested LED for J52 & J62 options.
Dimensions for reference only.

Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at <http://www.littelfuse.com/disclaimer-electronics>.