

# 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

### Applications

- Telecommunications
- Instrumentation
- Medical equipment

### Agency Approvals

Agency	Agency File Number
	E42363

### Specifications

<b>Contact Rating</b>	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.
<b>Electrical Life</b>	7X01 and UX1 models: 100,000 make-and-break cycles at full load. All other models: 40,000 cycles.
<b>Contact Resistance</b>	Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.
<b>Insulation Resistance</b>	10 <sup>9</sup> Ω min.
<b>Dielectric Strength</b>	1000 Vrms min. @ sea level.
<b>Operating Temperature</b>	-30°C to 85°C
<b>Solderability</b>	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

<b>Case</b>	Glass filled nylon 6/6, flame retardant, heat stabilized, or diallyl phthalate (DAP) (UL 94 V-0).
<b>Actuator</b>	Nylon, black.
<b>Frame (Front Mount)</b>	Spring steel, black.
<b>Frame (Rear Mount)</b>	Spring steel, black.
<b>Bushing</b>	Brass or zinc, nickel plated.
<b>Housing</b>	Stainless steel
<b>Switch Support</b>	Brass or steel, matte-tin plated.
<b>End Contacts</b>	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.
<b>Center Contacts &amp; All Terminals</b>	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.
<b>Terminal Seal</b>	Epoxy. Refer to Soldering and Cleaning in Technical Data Section
<b>Hardware</b>	Mounting nuts & screws: Brass. Lockwasher: Stainless steel. Standoff: Nylon standard.

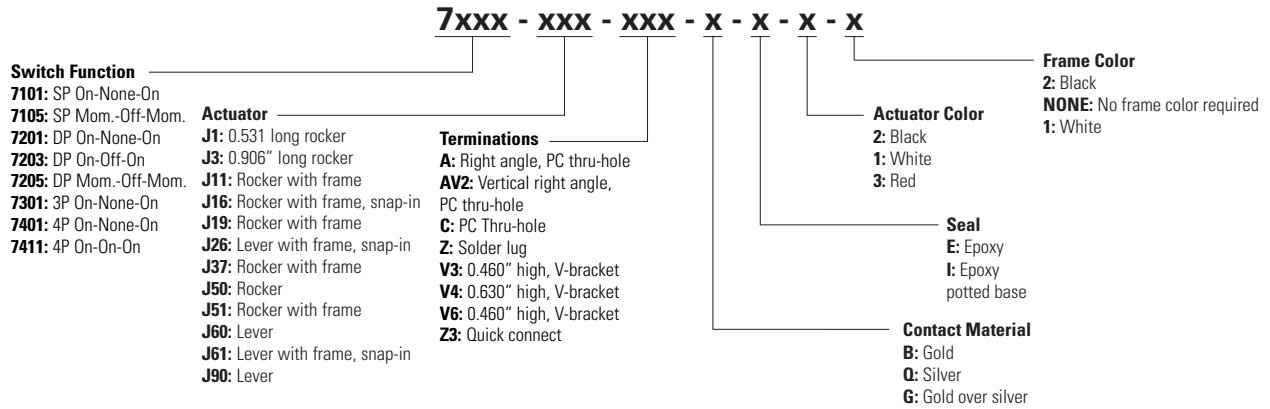
# 7000 Series

## Miniature Rocker & Lever Handle Switches



### Ordering Number

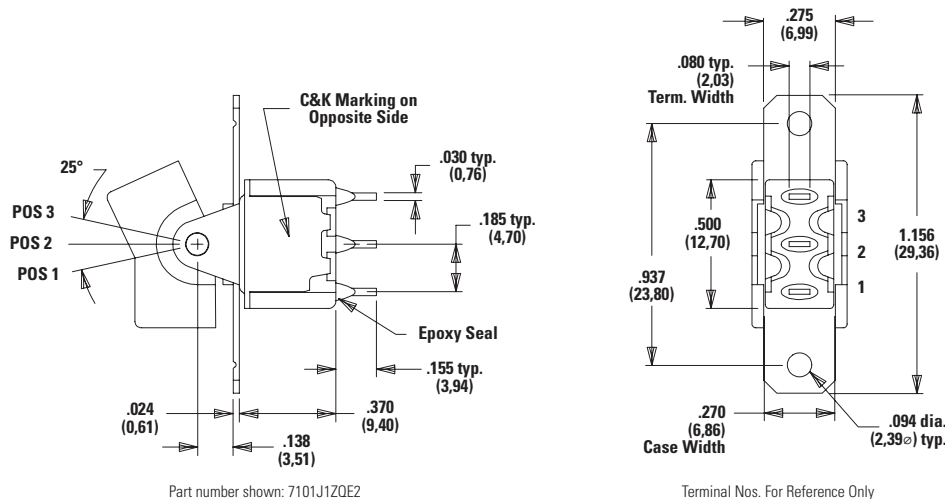
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult our Customer Service Center.



**Notes:**  
 1. 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. <sup>2</sup>	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



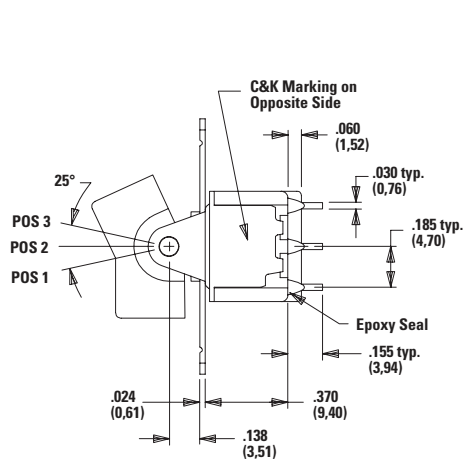
# 7000 Series

## Miniature Rocker & Lever Handle Switches

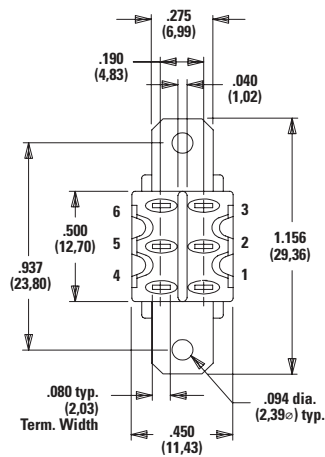


### DPDT

No. Poles	Model No.	UL Model No. <sup>2</sup>	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. c us with all options when ordered with G, or Q contact material.

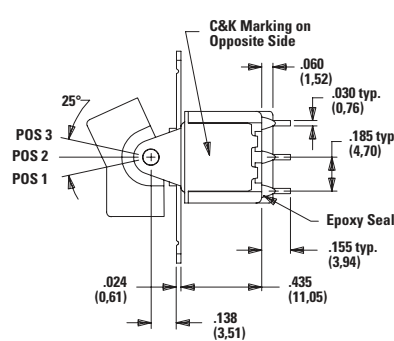
# 7000 Series

## Miniature Rocker & Lever Handle Switches

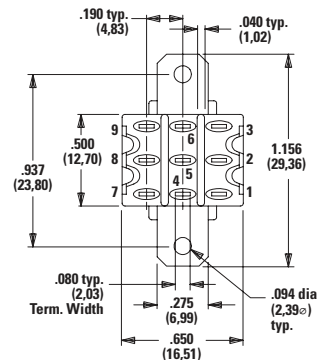


### 3PDT

No. Poles	Model No.	UL Model No. <sup>2</sup>	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	



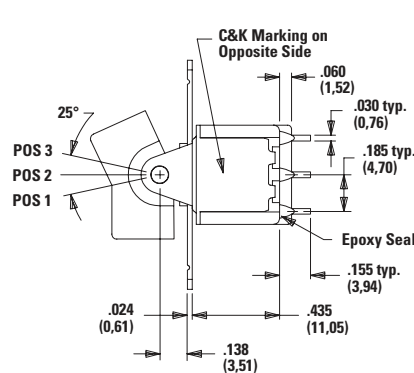
Part number shown: 7301J1ZQE2



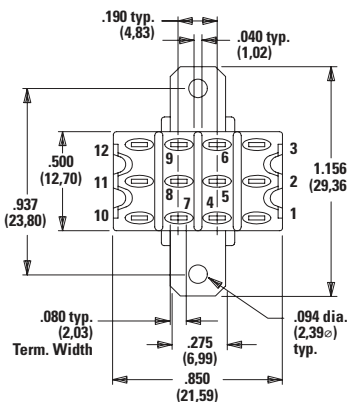
Terminal Nos. For Reference Only

### 4PDT

No. Poles	Model No.	UL Model No. <sup>2</sup>	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 <sup>1</sup>	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. conform to UL 508 with all options when ordered with G or Q contact material.

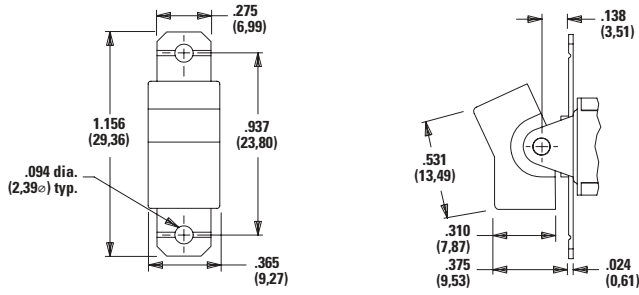
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## Miniature Rocker & Lever Handle Switches

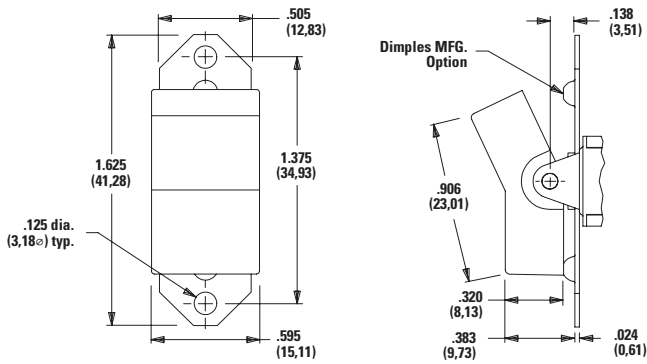


### Actuator-Panel Rear Mount

#### J1 Rocker

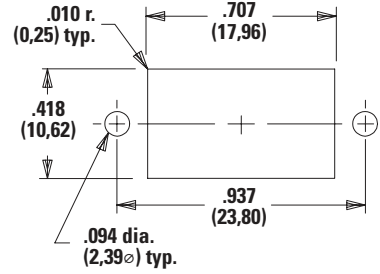


#### J3 Rocker

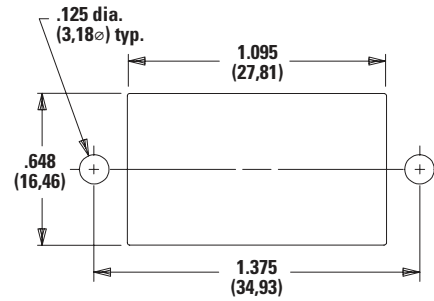


### Panel Mounting

#### 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.

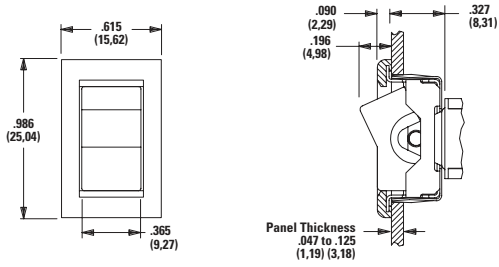
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## Miniature Rocker & Lever Handle Switches

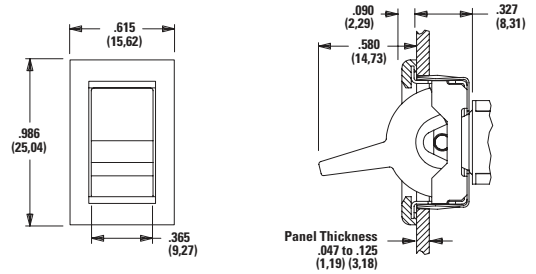


### Actuator-Panel Front Mount

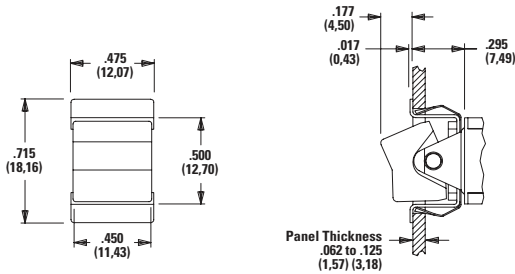
**J16 Rocker with Frame, Snap-in**



**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

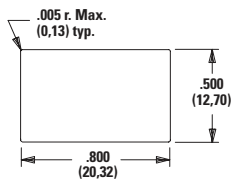
Option Code	Frame Color
2	Black
None	No Frame Color (J15 or J25 options)
1	White

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

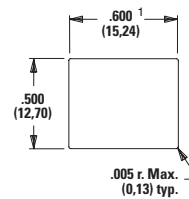
**Notes:** Actuators & frames available separately, see pages G-21 through G-22. J15, J16, J25, J26, J50 & J51 Actuators available with 71XX, 72XX, U1XX & U2XX models and C, W-W5, Z and Z3 terminations.

### Panel Mounting

**J16 & J26 Actuators**



**J50 Actuator**



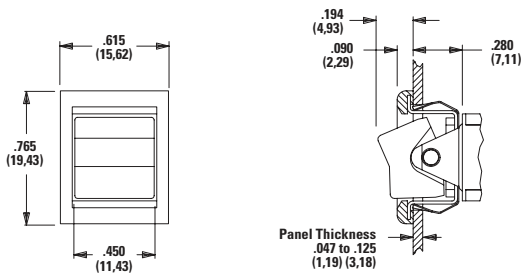
1. For J50: Increase this dimension to 0.620/0.625 (15.75/15.88) for 0.091/0.125 (2.31/3.18) thk. panels.

# 7000 Series

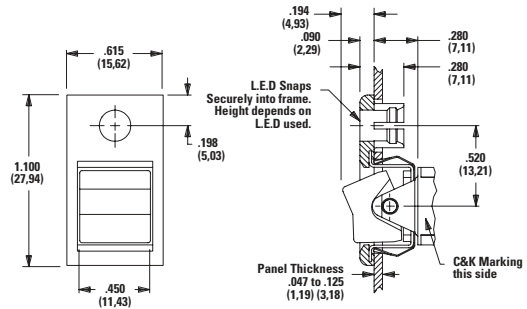
## Miniature Rocker & Lever Handle Switches



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

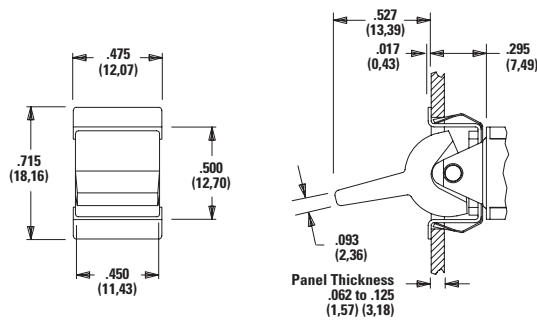


**J52 Rocker with Frame for LED, Snap-in**

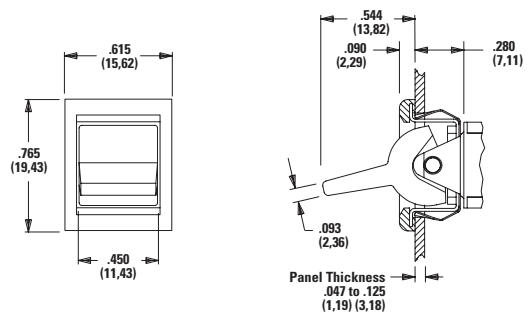


Notes: LED not included. For LED information, see page 24.

**J60 Lever, Snap-in**



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



Notes: No frame color choice required

Option Code	Actuator Color
2	Black
1	White
3	Red

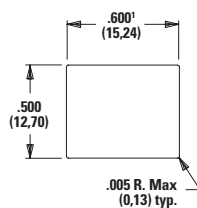
Option Code	Frame Color
2	Black
None	No Frame Color (J50 option)
1	White

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

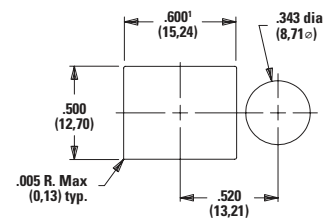
Notes: Actuators & frames available separately, see pages 22-24. J51, J52, J60 & J61 Actuators available with 71XX, 72XX, U1XX & U2XX models and C, W-W5, Z and Z3 terminations.

### Panel Mounting

**J51, J60 & J61 Actuators**



**J52 Actuators**



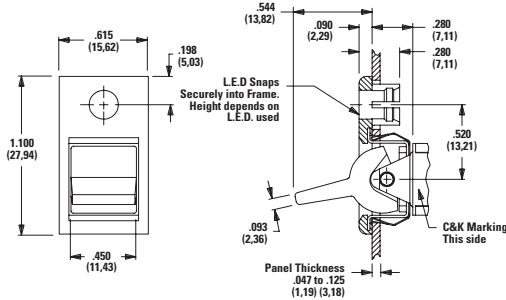
Notes:  
1. For J51, J52: Increase this dimension to 0.620/0.625 (15.75/15.88) for 0.060/0.125(1.52/3.18) thk. panels.

# 7000 Series

## Miniature Rocker & Lever Handle Switches

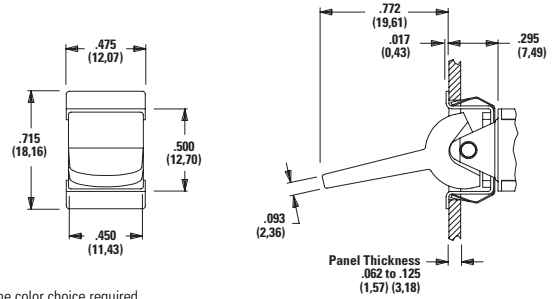


### J62 Lever With Frame, For LED, Snap-in



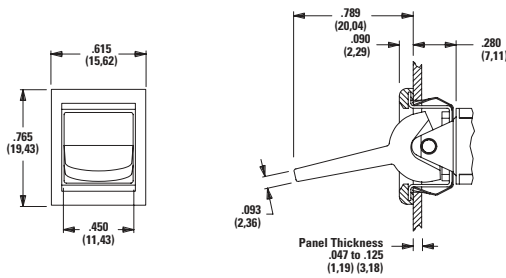
LED not included. For LED information, see page 24.

### J90 Lever, Snap-in



No frame color choice required.

### J91 Lever with Frame, Snap-in



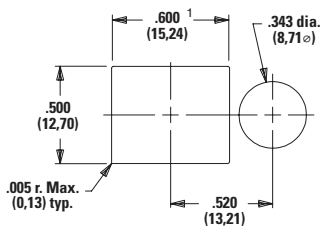
Option Code	Actuator Color
2	Black
1	White
3	Red

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

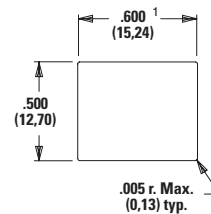
**Finish:** Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

### 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.

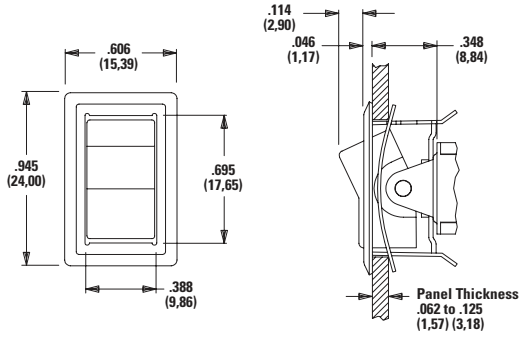
# 7000 Series

## Miniature Rocker & Lever Handle Switches

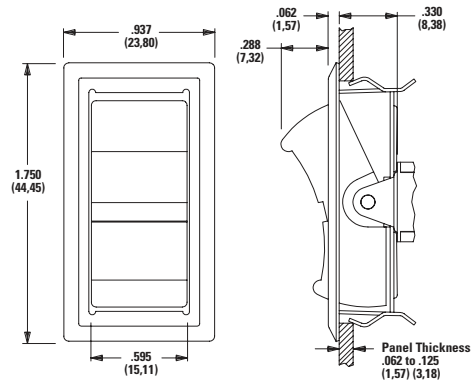


### Actuator-Rear Mount

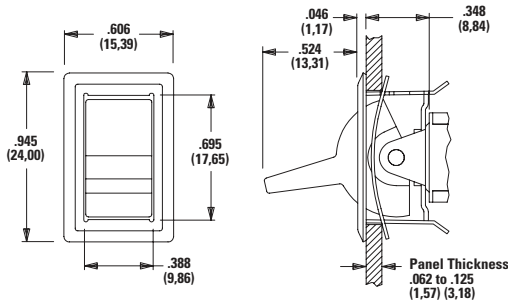
**J11 Rocker with Frame**



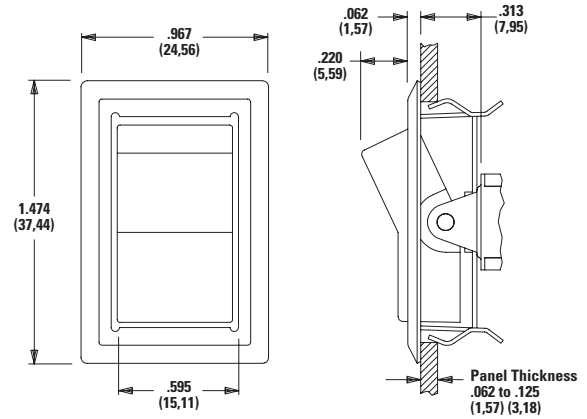
**J19 Rocker with Frame**



**J21 Lever with Frame**



**J37 Rocker with Frame**



Option Code	Actuator Color
2	Black
1	White
3	Red

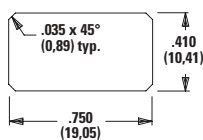
Option Code	Frame Color
2	Black
1	White

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

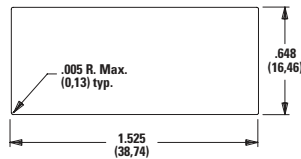
**Notes:** J11 & J37 Actuators available with C, Z & Z3 terminations. J37 offered with Black Frame only.

### Panel Mounting

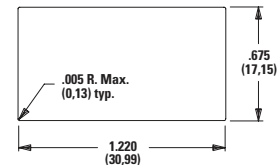
**J11 Actuator**



**J19 Actuator**



**J37 Actuator**



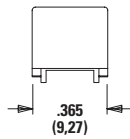
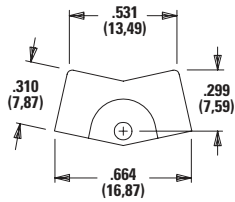
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## Miniature Rocker & Lever Handle Switches

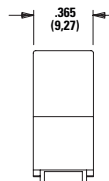
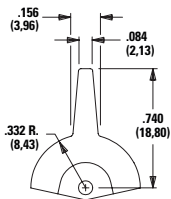


### Actuator-PC Mount

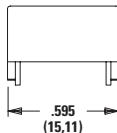
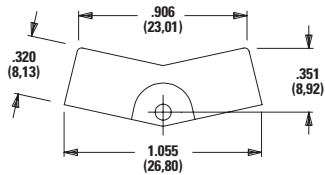
**J1 Rocker**



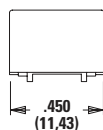
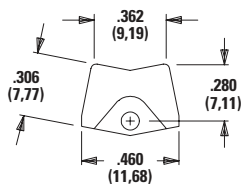
**J2 Rocker**



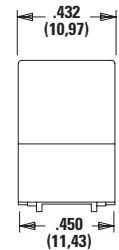
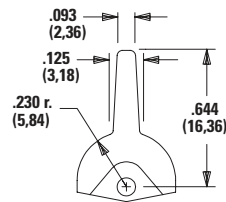
**J3 Rocker**



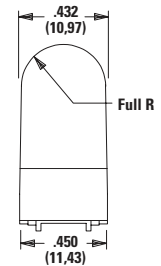
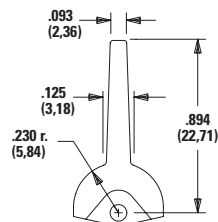
**J50 Rocker**



**J60 Lever**



**J90 Lever**



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.

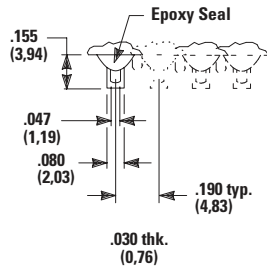
# 7000 Series

## Miniature Rocker & Lever Handle Switches



### Terminations

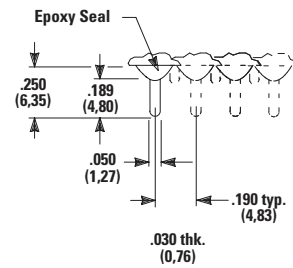
#### Z Solder Lug



SPDT thru 4PDT

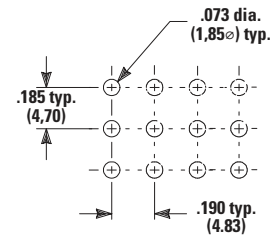
Not available with P, R or S contact materials. Available actuators, see pages 6-11.

#### C PCThru-hole



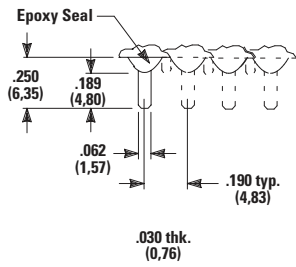
SPDT thru 4PDT

#### PC Mounting



Notes: Available actuators, see pages 6-11.

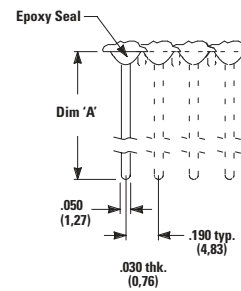
#### Z3 Quick Connect



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

#### W, W3, W5 Wire Wrap



SPDT thru 4PDT

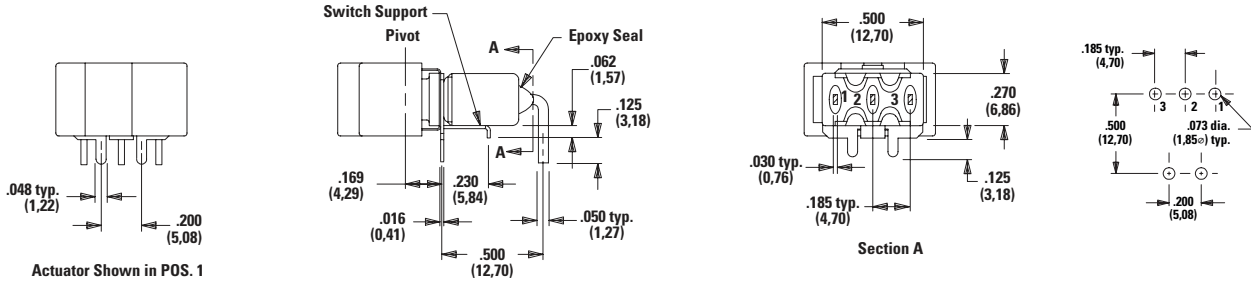
Option Code	DIM 'A'
W	.750 (19,05)
W3	.425 (10,80)
W5	1.305 (33,15)

# 7000 Series

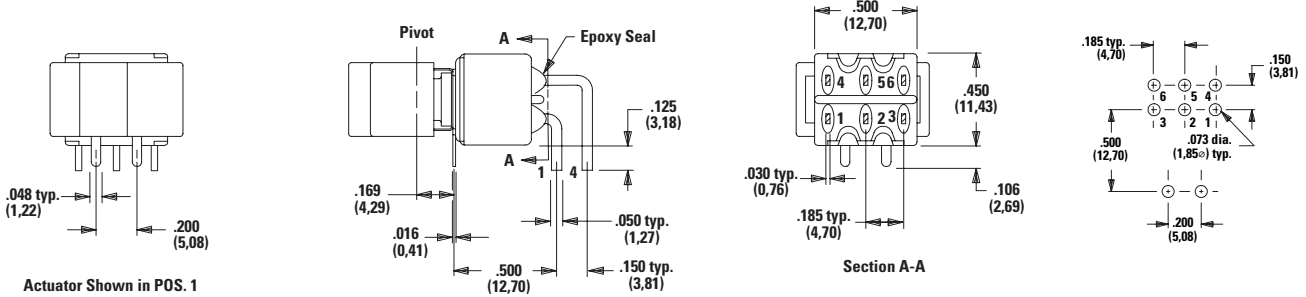
## Miniature Rocker & Lever Handle Switches



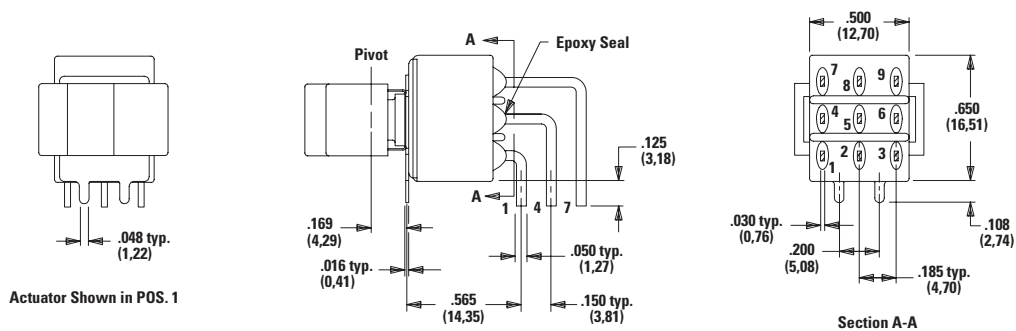
### A Right Angle, PC Thru-hole 7101J1ABE2 Horizontal Actuation SPDT



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

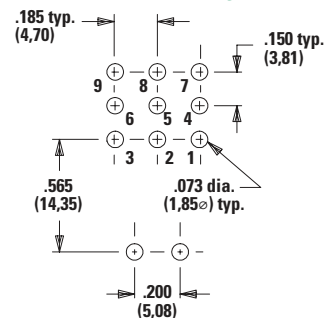


### A Right Angle, PC Thru-hole 7301J1ABE2 Horizontal Actuation 3PDT



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

### PC Mounting

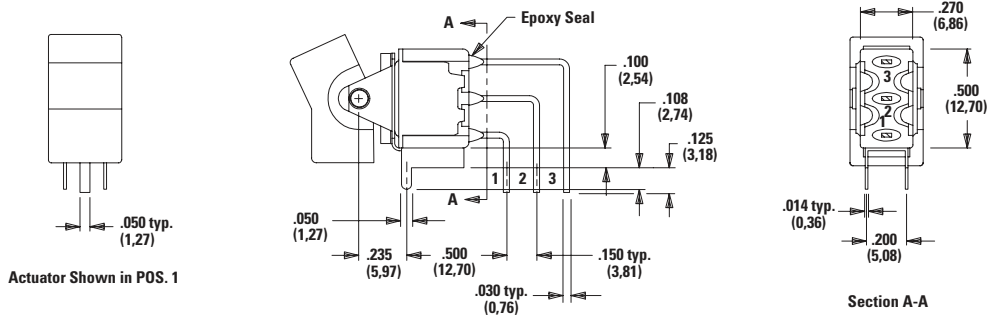


# 7000 Series

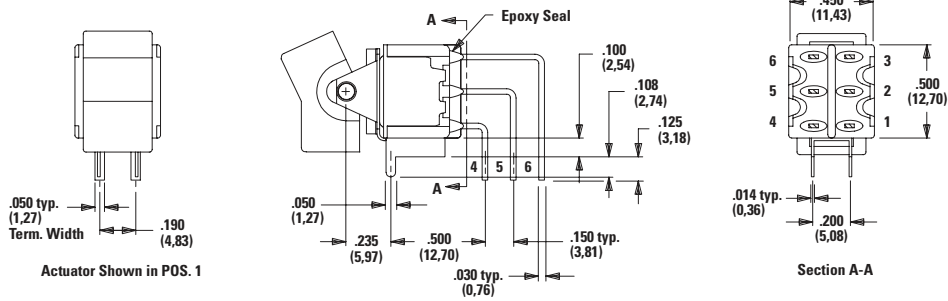
## Miniature Rocker & Lever Handle Switches



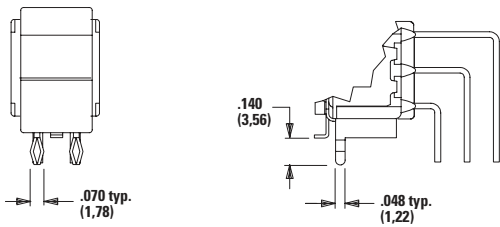
### AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch 7101J1AV2BE2 Vertical Actuation SPDT



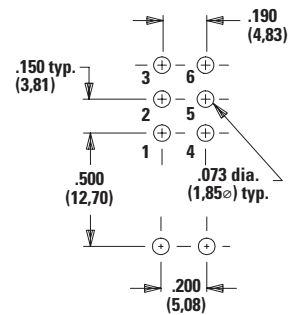
### AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch 7201J1AV2BE2 Vertical Actuation DPDT



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



### PC Mounting



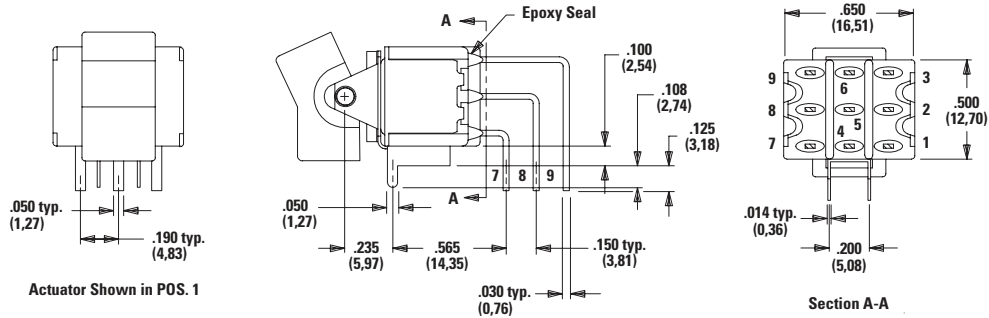
Not available with I seal option. Available actuators, see pages 5-10. Terminal bend radii and lead-in manufacturing option.

# 7000 Series

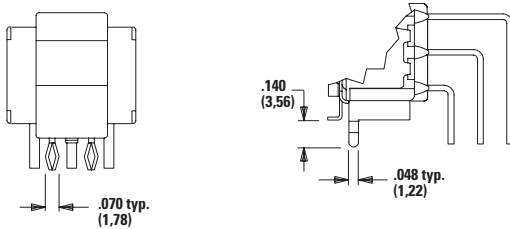
## Miniature Rocker & Lever Handle Switches



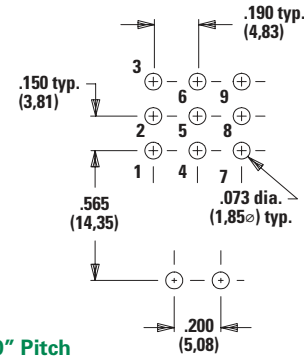
### AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch 7301J1AV2BE2 Vertical Actuation 3PDT



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

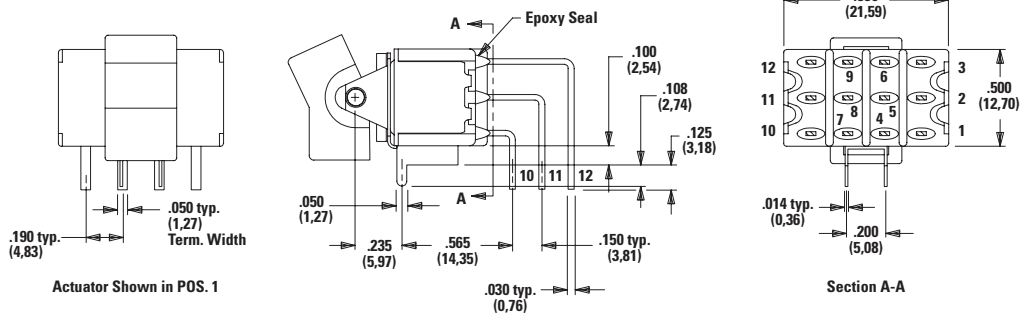


### PC Mounting

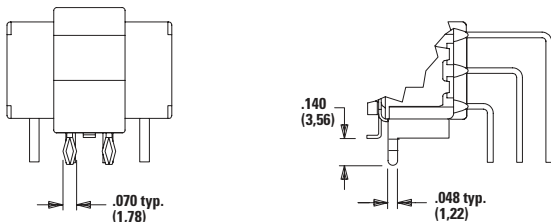


Not available with I seal option. Available actuators, see pages 5-10. Terminal bend radii and lead-in manufacturing option.

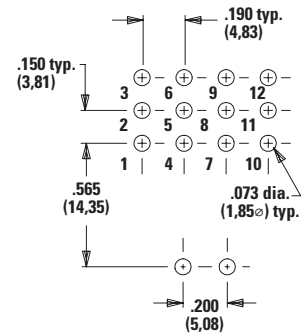
### AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch 7401J1AV2BE2 Vertical Actuation 4PDT



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



### PC Mounting



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

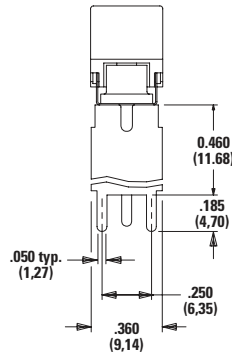
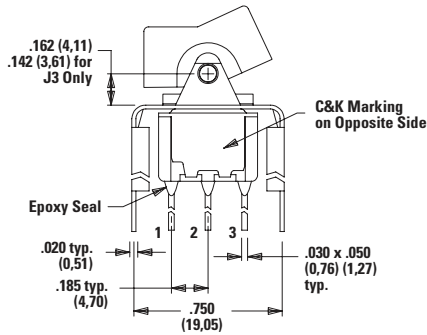
# 7000 Series

## Miniature Rocker & Lever Handle Switches

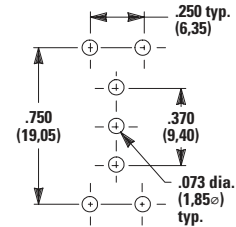


### V6 Vertical Mount

#### 7101J1\_BE2 SPDT



#### PC Mounting



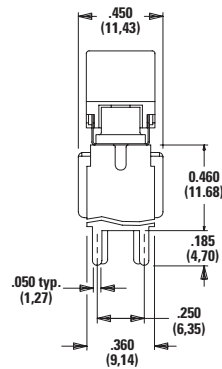
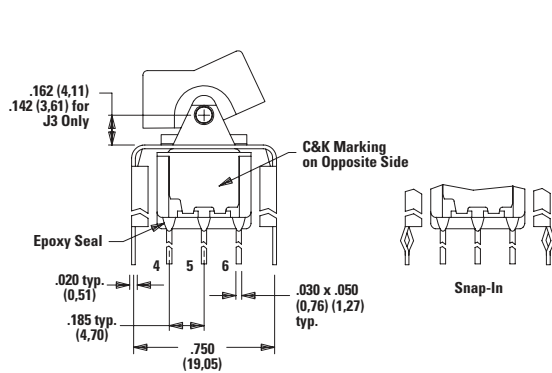
Actuator Shown in POS. 1

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

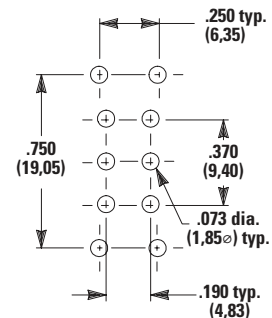
Option Code	DIM 'A'
V2, V21	0.555 (14.10)
V6, V61	0.460 (11.68)
V7	0.630 (16.00)
V8	0.953 (24.21)

### V6 Vertical Mount

#### 7201J1\_BE2 DPDT



#### PC Mounting



Actuator Shown in POS. 1

Not available with I seal option.

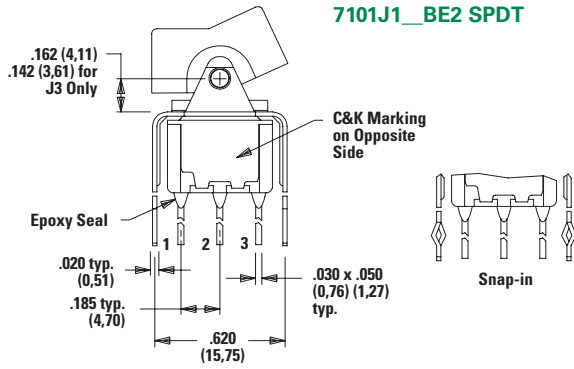
Option Code	DIM 'A'
V2, V21	0.555 (14.10)
V6, V61	0.460 (11.68)
V7	0.630 (16.00)
V8	0.953 (24.21)

# 7000 Series

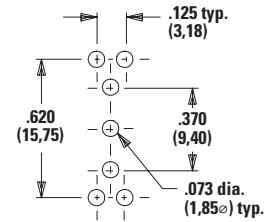
## Miniature Rocker & Lever Handle Switches



### V3 & V4 Vertical Mount, V Bracket



### PC Mounting



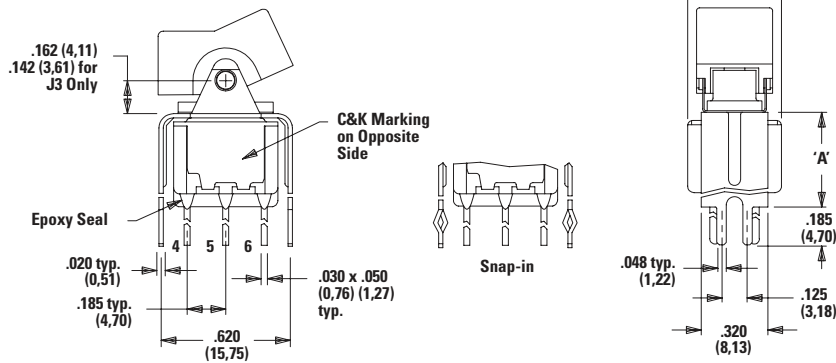
Actuator Shown in POS.1

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

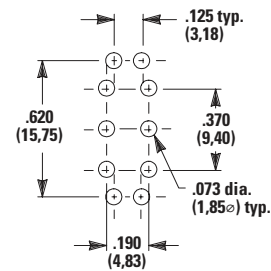
Option Code	DIM 'A'
V3	0.460 (11.68)
V4	0.630 (16.00)

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

#### 7201J1\_BE2 DPDT



### PC Mounting



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)

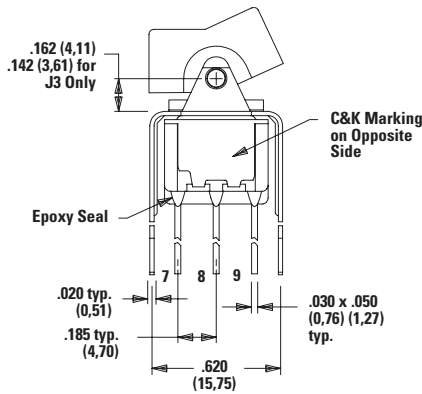
# 7000 Series

## Miniature Rocker & Lever Handle Switches

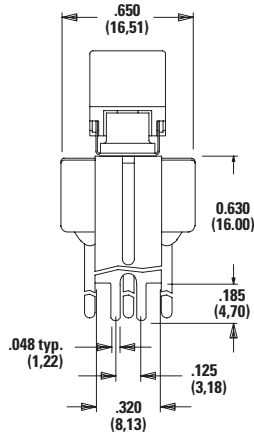


### V4 Vertical Mount, V Bracket

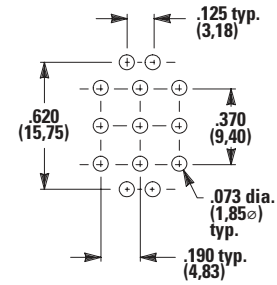
#### 7301J1\_BE2 3PDT



Actuator Shown in POS. 1



#### PC Mounting

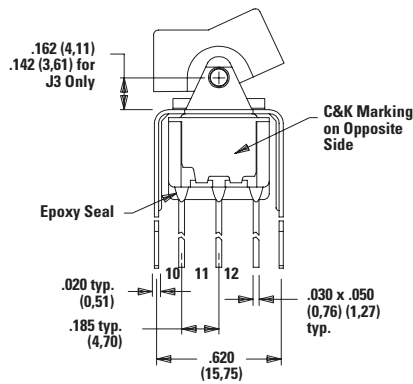


Not available with I seal option.

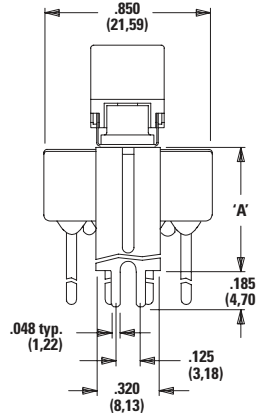
Option Code	DIM 'A'
V4	0.630 (16.00)
V9	1.150 (29.21)

### V4 Vertical Mount, V Bracket

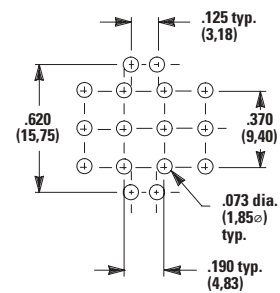
#### 7401J1\_BE2 4PDT



Actuator Shown in POS.1



#### PC Mounting



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

Option Code	DIM 'A'
V4	0.630 (16.00)

# 7000 Series

## Miniature Rocker & Lever Handle Switches



### Contact Material

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

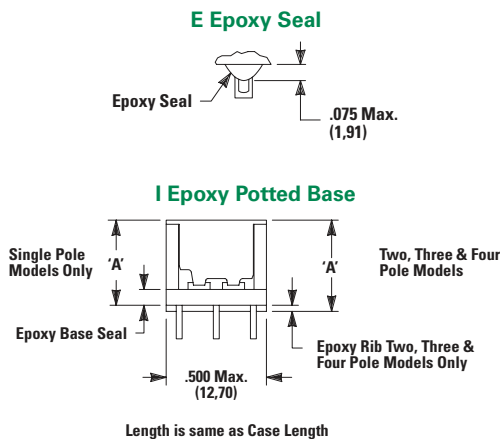
U11 model numbers **CALUS** with all options when ordered with G, Q, S & R contact material.

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



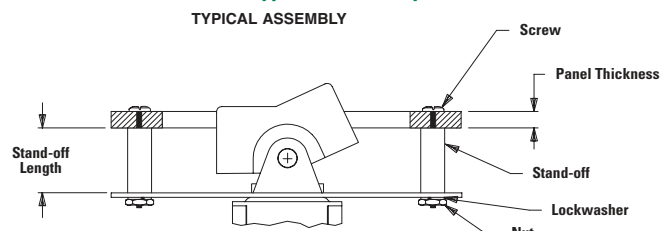
No. Poles	DIM 'A'
SP	0.410 (10.41)
DP	0.440 (11.18)
3P	0.505 (12.83)
4P	

### 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

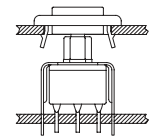
# 7000 Series

## 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



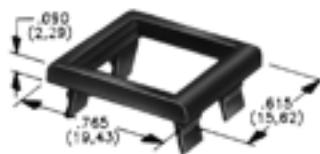
0.047" (1.19) Panel THK.  
Part No. 452902263

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

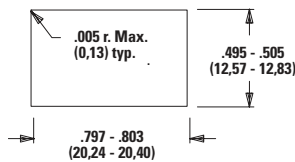
0.062" (1.57) Panel THK.  
Part No. 432602263

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

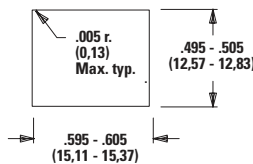
0.125" (3.18) Panel THK.  
Part No. 432802263 Black

### Panel Mounting

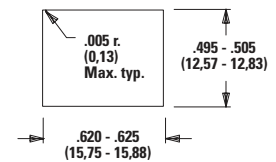
For Part Numbers  
4529xxxxx, 4527xxxxx,  
4528xxxxx, 4526xxxxx



For Part Numbers  
4325xxxxx, 4326xxxxx

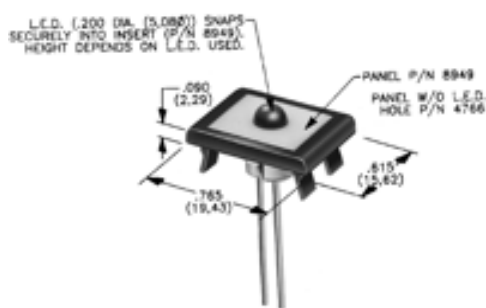


For Part Numbers  
4327xxxxx, 4328xxxxx



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

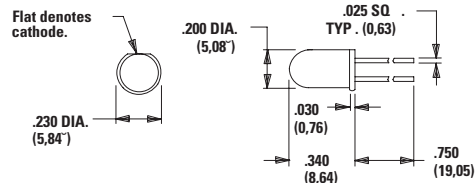


Will fit separate snap-in frames for J50, J60 & J90 actuators

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.



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

### 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.

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