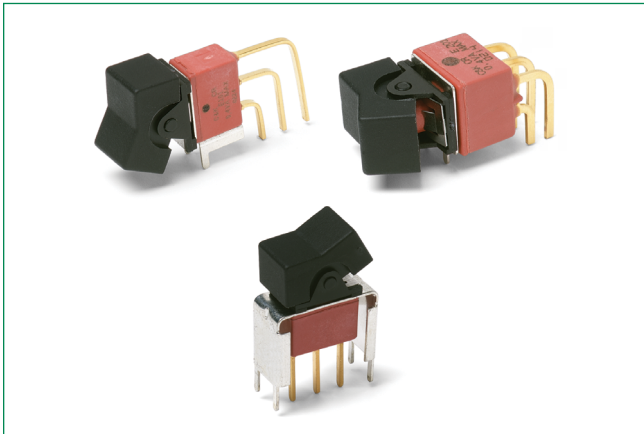


# E Series

## Sealed Miniature Rocker and Lever Handle Switches



### 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 (E1XX & E2XX models): 7.5 amps @125 V AC or 28 V DC; 3 amps @ 250 V AC. (E3XX models): 5 amps @ 125 V AC or 28 V DC; 2 amps @ 250 V AC. See page 12 for additional ratings.
<b>Electrical Life</b>	E1XX and E2XX models: 40,000 make-and-break cycles at full load. E3XX models: 30,000 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>Electrostatic Discharge (ESD) Option</b>	All actuator options: 15,000 V DC max. @ sea level, actuator to terminals.
<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).

### Description

Telecommunications, instrumentation and computer and peripheral product designers need resilient, long-lasting switches that can be held to a high-performance standard. The E series sealed miniature rocker and lever handle switches are sealed against solder and cleaning process contaminants, feature ESD Resistance for all actuator options and its rocker, case and bushing are UL 94 V-0 rated.

### Features & Benefits

- Sealed against solder and cleaning process contaminants
- ESD Resistance—all actuator options
- Rocker, case & bushing UL 94 V-0
- RoHS compliant

### Applications

- Telecommunications
- Instrumentation
- Computers & peripherals

### Materials

<b>Case &amp; Bushing</b>	Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0).
<b>Actuator</b>	Nylon, black standard, internal o-ring seal standard with all actuators.
<b>Frame</b>	Spring steel, black standard
<b>Switch Support</b>	Brass or steel, matte-tin plated.
<b>Actuator Pivot &amp; Mounting Bracket</b>	Nylon
<b>Actuator Pivot Retainer</b>	Stainless steel
<b>Contacts &amp; Terminals</b>	B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page 12 for additional contact materials.
<b>Terminal Seal</b>	Epoxy.
<b>Hardware</b>	Nut, Screw & Lockwasher: Stainless steel. Standoff: Nylon standard, aluminum available, consult Customer Service Center.

#### Notes:

Any models supplied with Q, B, G, S, P & R 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.

# E Series

## Sealed Miniature Rocker and Lever Handle Switches



### Ordering Number

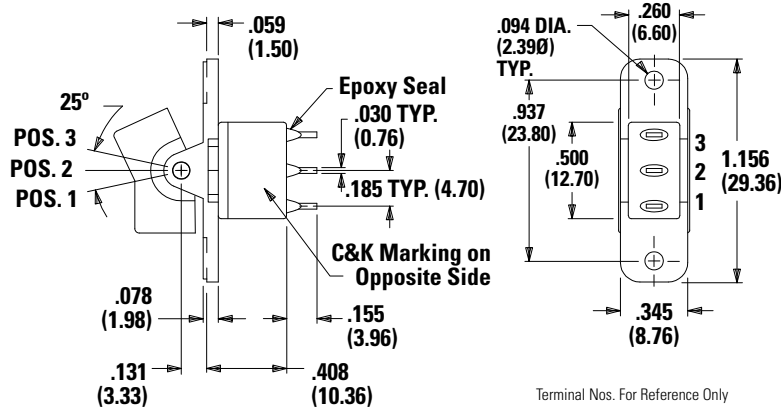
To order, simply select desired option from each category and place in the appropriate box. **For additional options not shown in catalog, consult Customer Service Center.** All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.

**Exxx - xxx - xxx - x - E - x - x**

<p><b>Switch Function</b></p> <p><b>E101:</b> SP On-None-On  <b>E103:</b> SP On-Off-On  <b>E105:</b> SP Mom.-Off-Mom.  <b>E107:</b> SP On-Off-Mom.  <b>E108:</b> SP On-None-Mom.  <b>E201:</b> DP On-None-On  <b>E203:</b> DP On-Off-On  <b>E205:</b> DP Mom.-Off-Mom.  <b>E207:</b> DP On-Off-Mom.  <b>E208:</b> DP On-None-Mom.  <b>E211:</b> DP On-On-On  <b>E213:</b> DP On-On-Mom.  <b>E215:</b> DP Mom.-On-Mom.  <b>E301:</b> 3P On-None-On</p>	<p><b>Actuator</b></p> <p><b>J1:</b> 0.531 long rocker  <b>J2:</b> Lever  <b>J3:</b> 0.906" long rocker  <b>J11:</b> Rocker with frame  <b>J21:</b> Lever with frame  <b>J50:</b> .362" long rocker  <b>J60:</b> Lever  <b>J90:</b> Lever</p>	<p><b>Terminations</b></p> <p><b>A:</b> Right angle, PC thru-hole  <b>AV2:</b> Vertical right angle, PC thru-hole  <b>C:</b> PC Thru-hole  <b>Z:</b> Solder lug  <b>A3:</b> Right angle, snap-in, PC thru-hole  <b>AV3:</b> Vertical right angle, snap-in, PC thru-hole  <b>V3:</b> 0.460" high, V-bracket  <b>V4:</b> 0.630" high, V-bracket  <b>V5:</b> Vertical right angle, PC thru-hole  <b>V6:</b> 0.460" high, V-bracket  <b>V7:</b> 0.630" high, V-bracket  <b>V8:</b> 0.953" high, V-bracket  <b>V21:</b> 0.555" high, V-bracket, snap-in  <b>V31:</b> 0.460" high, V-bracket, snap-in</p>	<p><b>Actuator Color</b></p> <p><b>2:</b> Black  <b>3:</b> Red</p> <p><b>Seal</b></p> <p><b>E:</b> Epoxy</p> <p><b>Contact Material</b></p> <p><b>B:</b> Gold  <b>P:</b> Gold, matte-pin  <b>Q:</b> Silver  <b>S:</b> Silver, matte-pin  <b>G:</b> Gold over silver  <b>R:</b> Gold over silver, matte-pin</p>	<p><b>Frame Color</b></p> <p><b>2:</b> Black  <b>NONE:</b> No frame color required</p> <p><b>Metal Frame Color</b></p> <p><b>2:</b> Black  <b>(J11, J21 Actuators)</b></p>
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### Switch Function SPDT

No. Poles	Model No.	Switch Function			Connected Terminals			Schematic
		C&K marking on opposite side						
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
SP	E101	ON	NONE	ON		N/A		
	E103							
	E105	MOM	OFF	MOM.	2-3	OPEN	2-1	
	E107							
	E108	ON	NONE	MOM.		N/A		



Notes: Part number shown: E101J1ZBE2

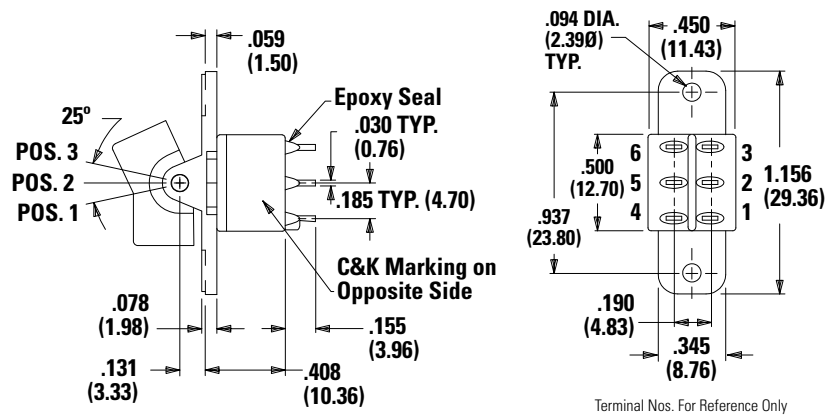
# E Series

## Sealed Miniature Rocker and Lever Handle Switches



DPDT

No. Poles	Model No.	Switch Function			Connected Terminals			Schematic
		C&K marking on opposite side						
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
DP	E201	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	E203		OFF			OPEN		
	E205	MOM	MOM.	N/A				
	E207	ON	NONE	ON		2-3,5-4		
	E208		ON	MOM.				
	E211 <sup>1</sup>		ON	MOM.				
	E213 <sup>1</sup>	MOM.	ON	MOM.		2-3,5-4		
	E215 <sup>1</sup>		MOM.	MOM.				



**Notes:** MOM. = Momentary, Part number shown: E201J1ZBE2. All models us with all options when ordered with G, Q, R or S contact material.  
 1. Wiring for 3-way switch. Hardware available separately, see Technical Data section of this catalog.

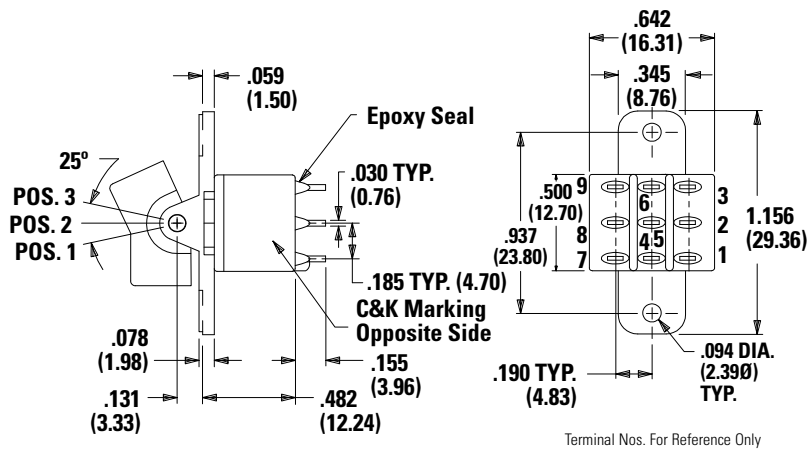
# E Series

## Sealed Miniature Rocker and Lever Handle Switches



### 3PDT

No. Poles	Model No.	Switch Function			Connected Terminals			Schematic
		C&K marking on opposite side						
		POS. 1	POS. 2	POS. 3	POS. 1	POS. 2	POS. 3	
3P	E301	ON	NONE	ON	2-3,5-6,8-9	N/A	2-1,5-4,8-7	



Terminal Nos. For Reference Only

**Notes:** MOM. = Momentary, Part number shown: E301J1ZQE2. All models c us with all options when ordered with G, Q, R or S contact material.  
**1.** Wiring for 3-way switch. Hardware available separately, see Technical Data section of this catalog.

# E Series

## Sealed Miniature Rocker and Lever Handle Switches



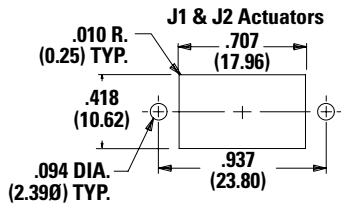
### Actuator-Panel Rear Mount

Option Code	Actuator Color
2	Black
3	Red

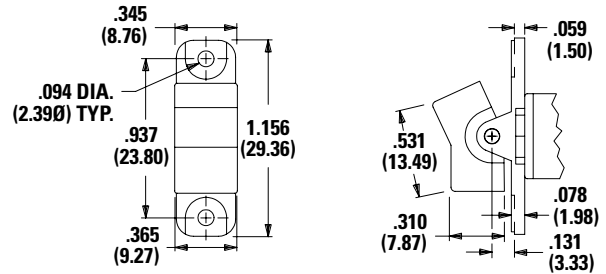
**Finish:** Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

**Notes:** Hardware: two each—mounting screws, nuts, lock-washers and standoffs for 1/8 inch thick panel are supplied standard on switches with panel mounting bracket. Internal o-ring actuator seal standard. Actuators available separately, see page 13. Hardware available separately, see Technical Data section of this catalog. J1, J2 actuators available with C, Z or Z3 terminations.

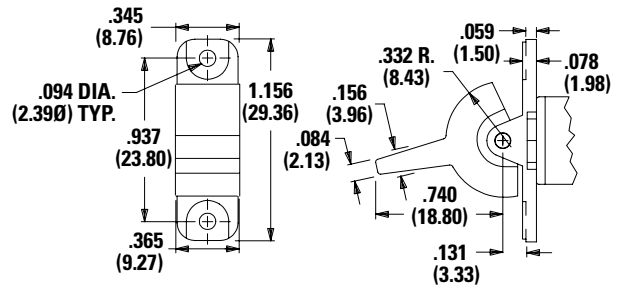
#### Panel Mounting



#### J1 Level



#### J2 Level



### Actuator-Rear Mount

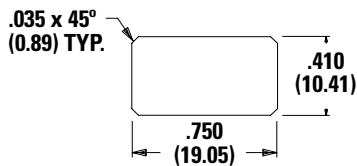
Option Code	Actuator Color
2	Black
3	Red

Option Code	Frame Color
2	Black

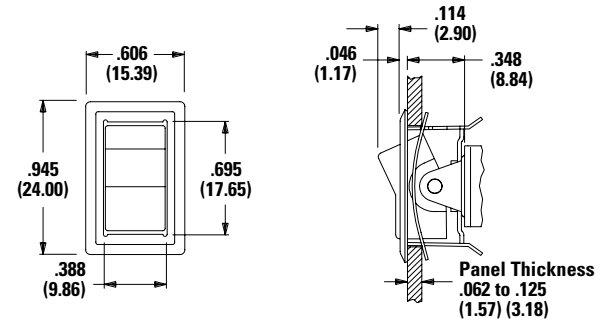
**Finish:** Matte. Matte, frame finish: gloss. Other colors, custom actuator markings and legends available, consult Customer Service Center.

**Notes:** Internal o-ring actuator seal standard. Actuators & frames available separately, see page 13. Hardware available separately, see Technical Data section of this catalog. J11 & J21 actuators available with C, Z & Z3 terminations available with C, Z or Z3 terminations.

#### Panel Mounting

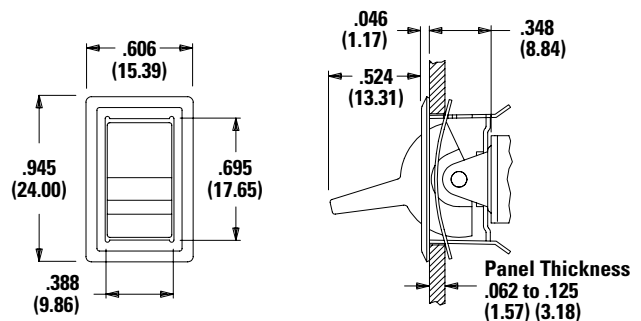


#### J11 Rocker with Frame



**Notes:** This option has reduced anti-static capability.

#### J21 Lever with Frame



**Notes:** This option has reduced anti-static capability.

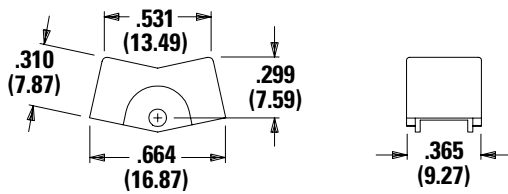
# E Series

## Sealed Miniature Rocker and Lever Handle Switches

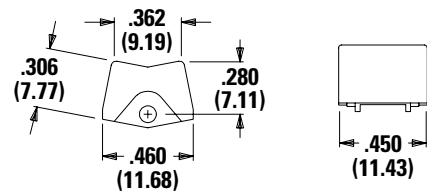


### Actuator-PC Mount

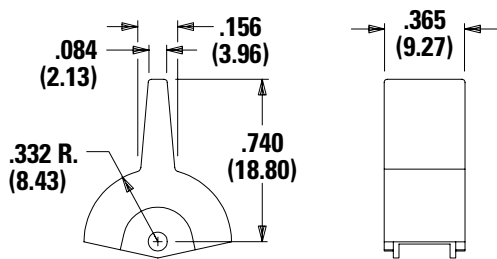
J1 Rocker



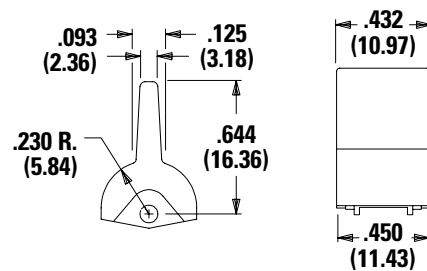
J50 Rocker



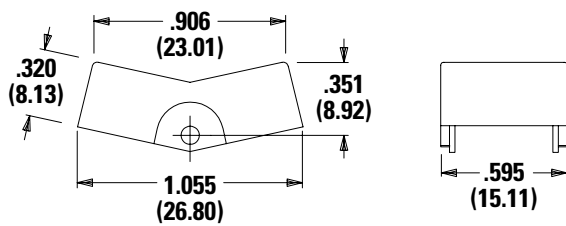
J2 Lever



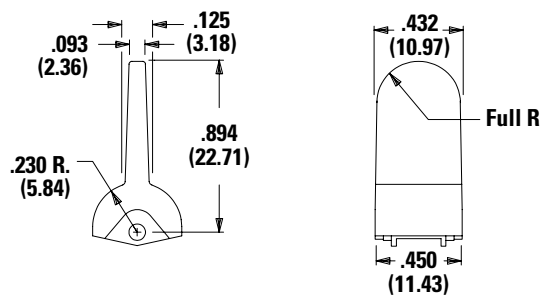
J60 Lever



J3 Rocker



J90 Lever



Option Code	Actuator Color
2	Black
3	Red

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

**Notes:** Hardware: two each—mounting screws, nuts, lock-washers and standoffs for 1/8 inch thick panel are supplied standard on switches with panel mounting bracket. Internal o-ring actuator seal standard. Actuators available separately, see page 13. Hardware available separately, see Technical Data section of this catalog.

J1, J2 actuators available with A, A3, AV2, AV3, V2-V61 terminations. J3 actuators available with AV2, AV3 & V2-V61 terminations. Some permissible actuator/termination combinations may lack clearance between actuator and PC board, and care must be exercised to accommodate this condition.

J50, J60 & J90 actuators available with A, AV2, AV3, V2 – V61 terminations.

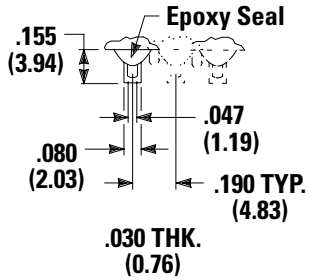
# E Series

## Sealed Miniature Rocker and Lever Handle Switches

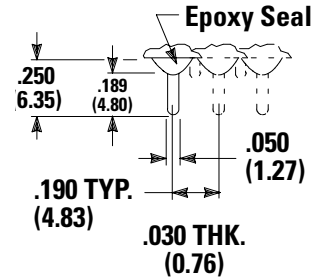


### Terminations

**Z Solder Lug**  
SPDT thru 3PDT

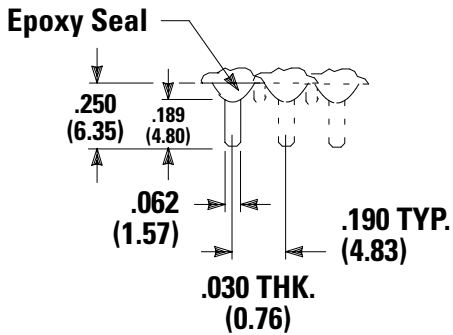


**C PC Thru-hole**  
SPDT thru 3PDT

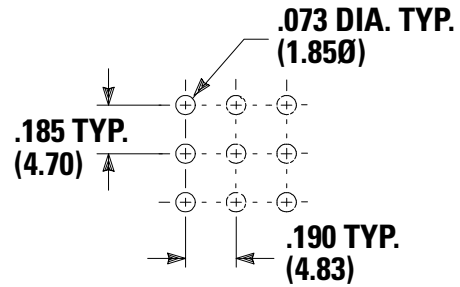


Notes: Not available with P, S, & R contact materials. Available actuators, see page 4-5.

**Z3 Quick Connect**  
SPDT thru 3PDT

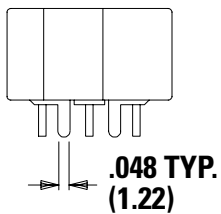


**PC Mounting**

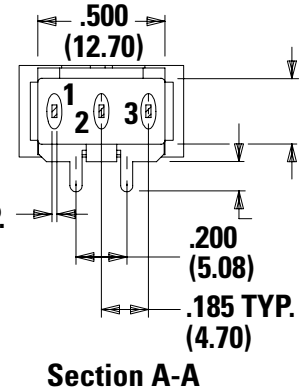
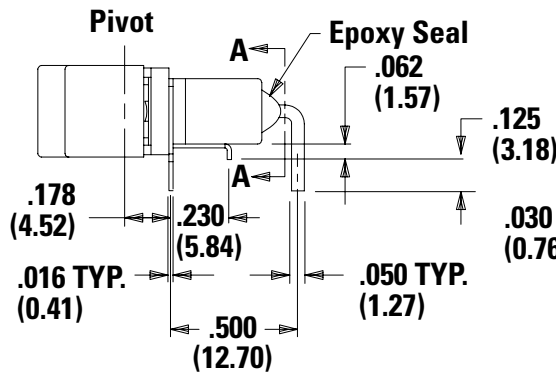


Notes: Not available with P, S, & R contact materials. Available actuators, see pages 4-5. Mating quick connector available; order part number 530100000, page 13.

**A Right Angle, PC Thru-hole**  
E101J1ABE2 Horizontal Actuation SPDT



Actuator Shown In Pos. 1



Section A-A

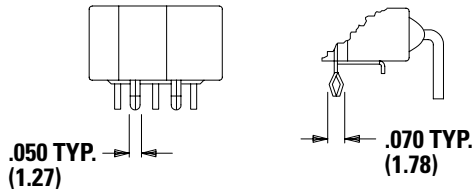
# E Series

## Sealed Miniature Rocker and Lever Handle Switches



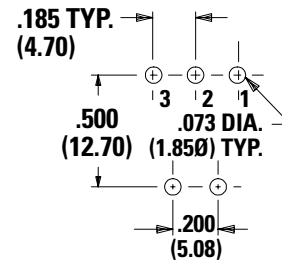
### A3 Right Angle, Snap-in, PC Thru-hole

#### Dimensions



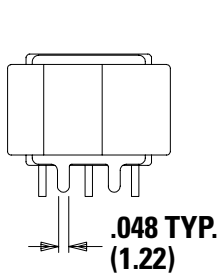
**Notes:** Not available with J3, J50, J60 and J90 actuators. Available actuators, see pages 4-5. Terminal bend radii and lead-in manufacturing option.

#### PC Mounting

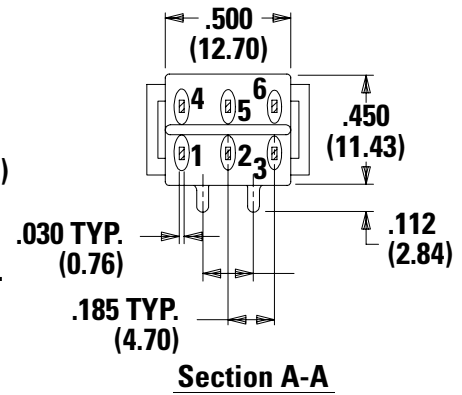
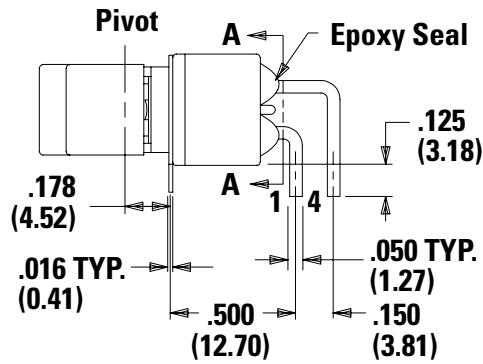


**Notes:** PC mounting pattern must clear switch support leg.

### A Right Angle, PC Thru-hole E201J1ABE2 Horizontal Actuation DPDT

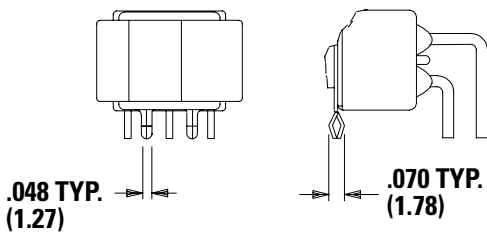


Actuator Shown In Pos. 1



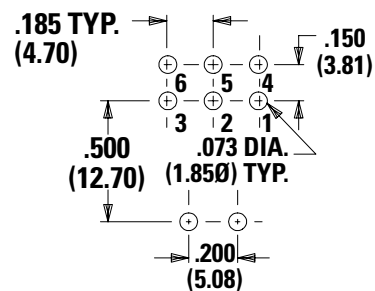
### A3 Right Angle, Snap-in, PC Thru-hole

#### Dimensions



**Notes:** Not available with J3 actuator. Available actuators, see pages 4-5. Terminal bend radii and lead-in manufacturing option.

#### PC Mounting

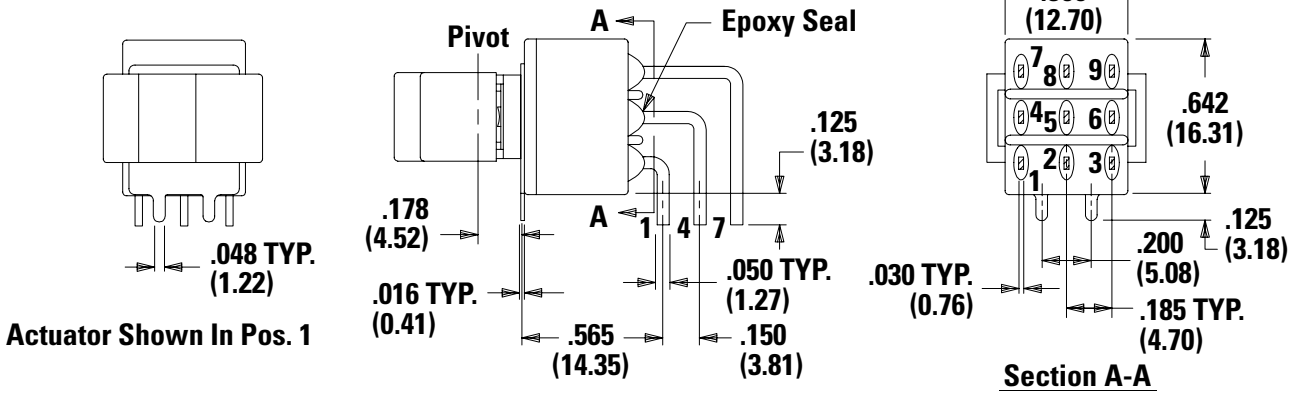


# E Series

## Sealed Miniature Rocker and Lever Handle Switches

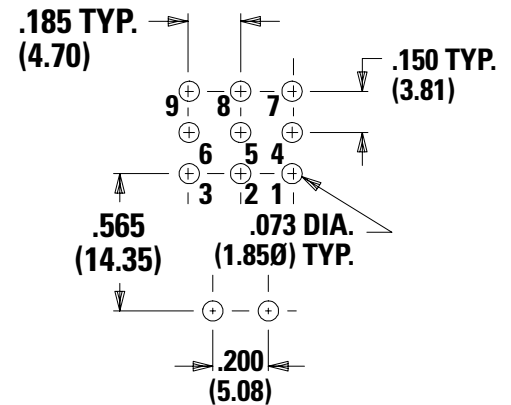


**A Right Angle, PC Thru-hole**  
**E301J1ABE2 Horizontal Actuation 3PDT**

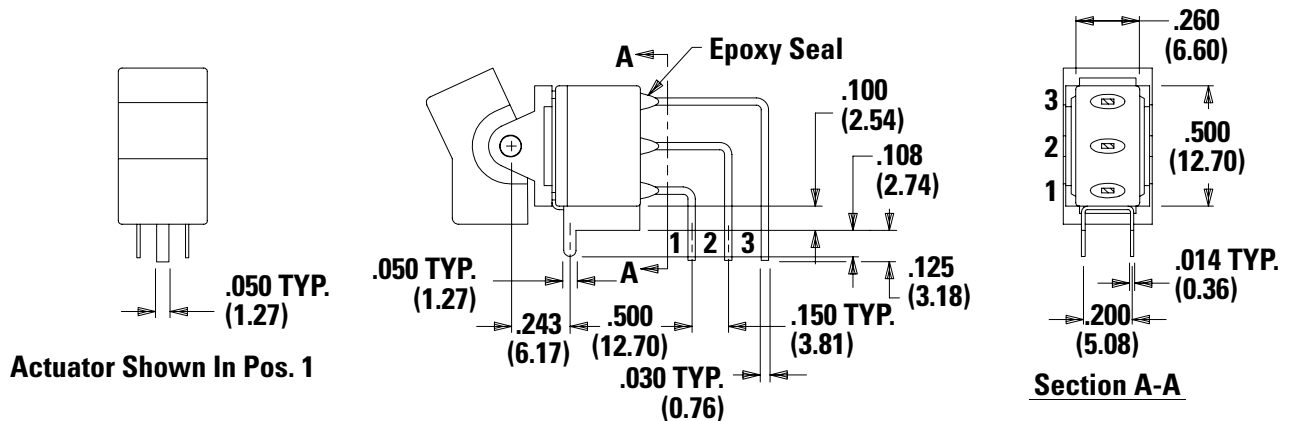


Notes: Terminal bend radii and lead-in manufacturing option. Available actuators, see pages 4-5.

**PC Mounting**



**AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch**  
**E101J1AV2BE2 Vertical Actuation SPDT**



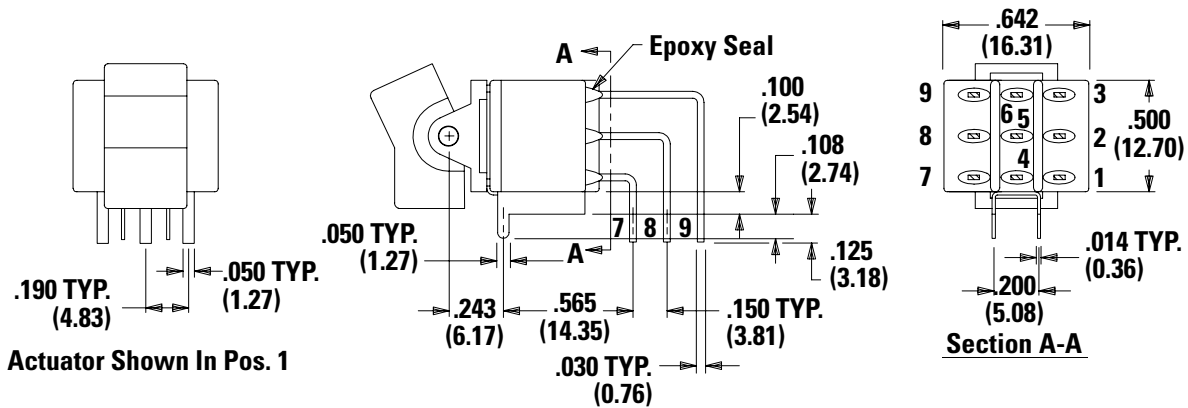


# E Series

## Sealed Miniature Rocker and Lever Handle Switches

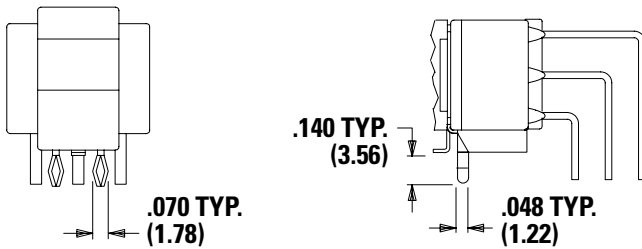


**AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch**  
**E301J1AV2BE2 Vertical Actuation 3PDT**

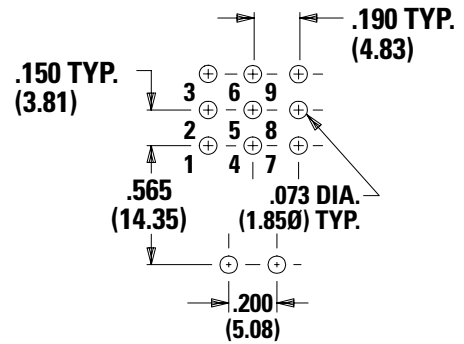


**AV3 Vertical Right Angle, Snap-in PC Thru-hole, 0.150" Pitch**

**Dimensions**



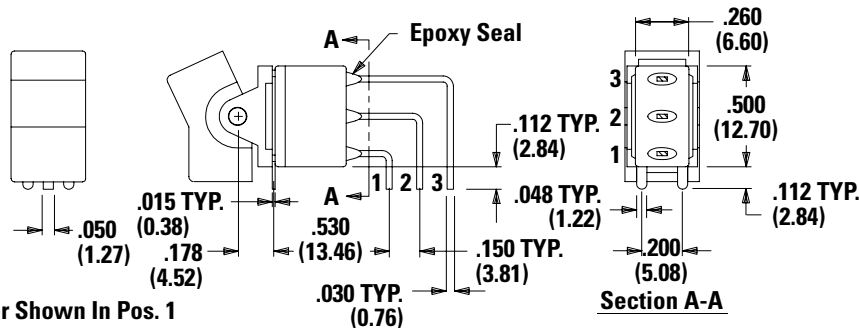
**PC Mounting**



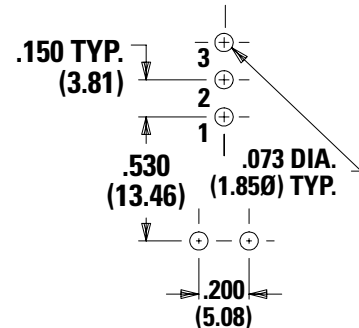
**Notes:** Terminal bend radii and lead-in manufacturing option. Available actuators, see pages 4-5.

**V5 Vertical Right Angle, PC Thru-Hole, 0.150" Pitch**  
**E101J1V5BE2 Vertical Actuation SPDT**

**Dimensions**



**PC Mounting**



**Notes:** Terminal bend radii and lead-in manufacturing option. Available actuators, see pages 4-5.

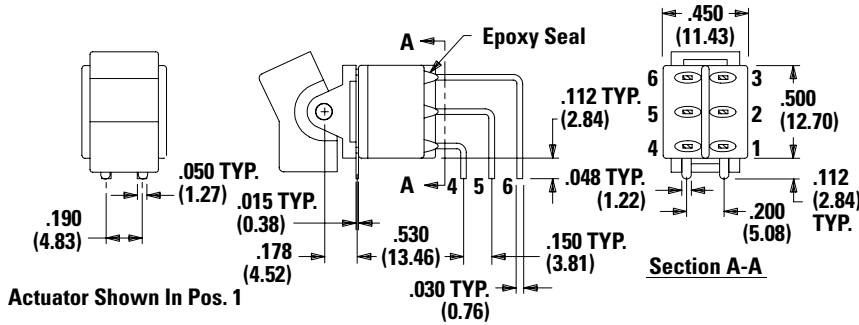
# E Series

## Sealed Miniature Rocker and Lever Handle Switches

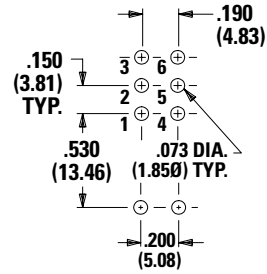


### V5 Vertical Right Angle, PC Thru-Hole, 0.150" Pitch E201J1V5BE2 Vertical Actuation DPDT

#### Dimensions

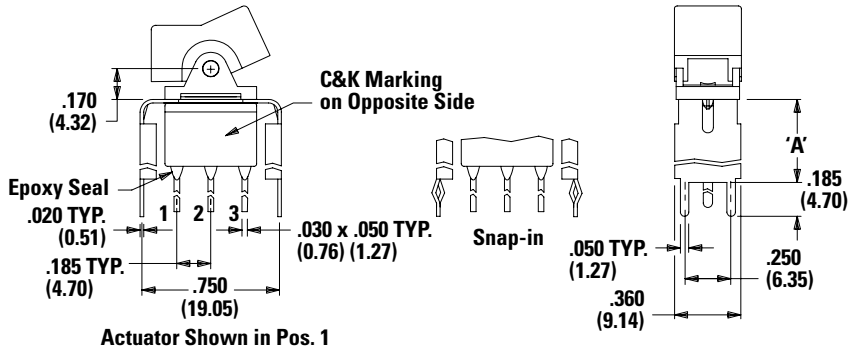


#### PC Mounting

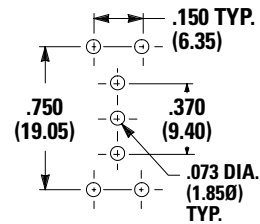


### V6, V7, V8 Vertical Mount, V Bracket V21 Vertical Mount, V Bracket, Snap-in E101J1\_BE2 SPDT

#### Dimensions



#### PC Mounting



Option Code	DIM 'A'
V21	0.555 (14.10)
V6	0.460 (11.68)
V7	0.630 (16.00)
V8	0.958 (24.21)

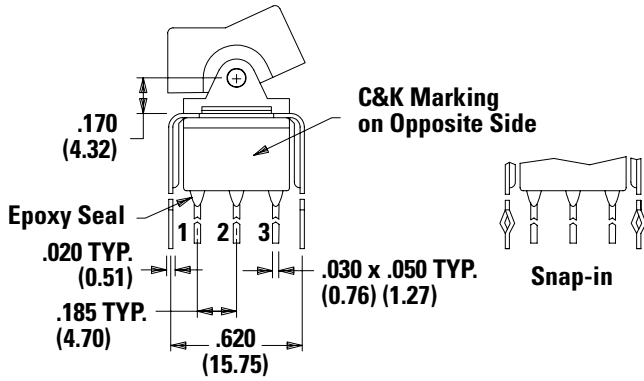


# E Series

## Sealed Miniature Rocker and Lever Handle Switches

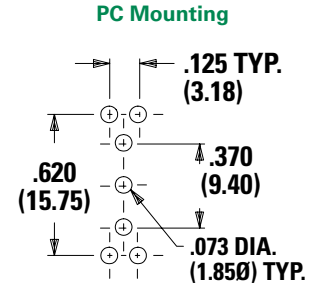
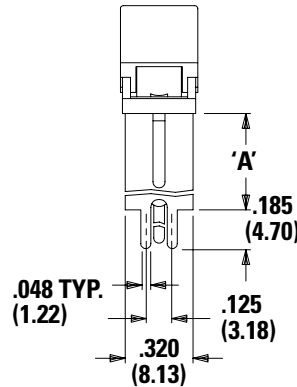


### V3, V4 Vertical Mount, V Bracket V31 Vertical Mount, V Bracket, Snap-in E101J1\_BE2 SPDT



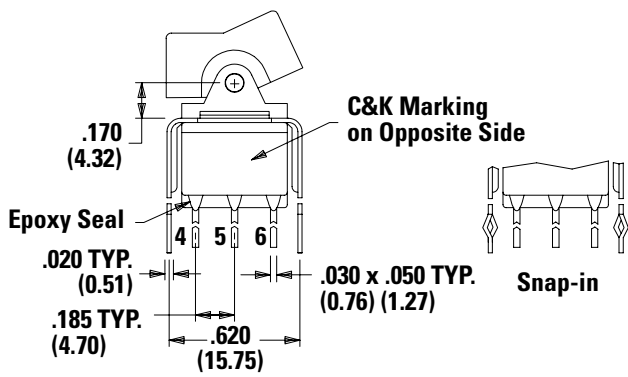
Actuator Shown in Pos. 1

Notes: Available actuators, see pages 4-5.



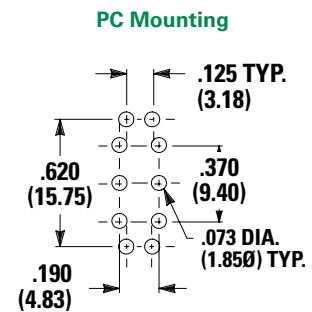
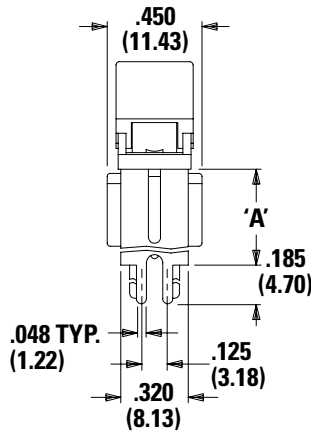
Option Code	DIM 'A'
V3, V31	0.460 (11.68)
V4	0.630 (16.00)

### V3, V4 Vertical Mount, V Bracket V31 Vertical Mount, V Bracket, Snap-in E201J1\_BE2 DPDT



Actuator Shown in Pos. 1

Notes: Available actuators, see pages 4-5.



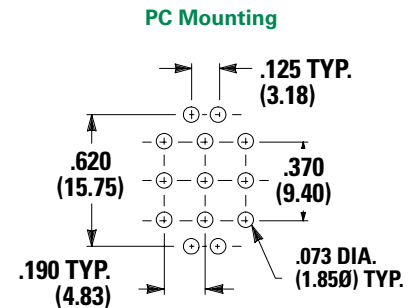
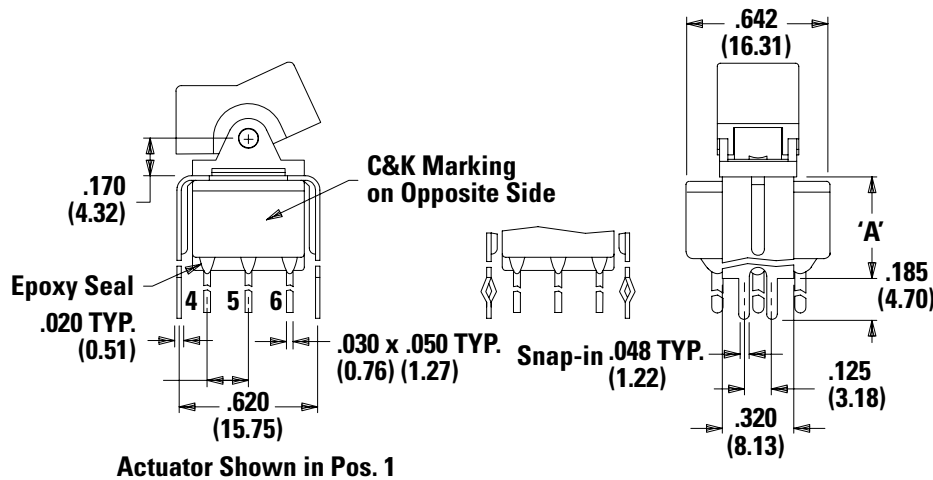
Option Code	DIM 'A'
V3, V31	0.460 (11.68)
V4	0.630 (16.00)

# E Series

## Sealed Miniature Rocker and Lever Handle Switches



### V4 Vertical Mount, V Bracket Vertical Mount, V Bracket, Snap-in E301J1\_BE2 3PDT



Notes: Available actuators, see pages 4-5.

Option Code	DIM 'A'
V41	0.630 (16.00)

### 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.
P		Matte-Tin <sup>7</sup>		
Q	Silver <sup>4,5</sup>	Silver <sup>5</sup>	Power	E1XX & E2XX models: 7.5 amps @125 V AC OR 28 V DC; 3 amps @ 250 V AC. E3XX models: 5 amps @ 125 V AC or 28 V DC; 2 amps @ 250 V AC.
S		Matte-Tin <sup>6</sup>		
G	Gold over Silver <sup>2,3</sup>	Gold <sup>3</sup>	Low Level/ Dry Circuit or Power	E1XX & E2XX models: 0.4 VA max. @20 V AC or DC max. O or R 7.5 amps @125 V AC or 28 V DC; 3 amps @ 250 V AC. DC E3XX models: 0.4 VA max. @ 20 V AC or DC max. or 5 amps @125 V AC or 28 V DC; 2 amps @ 250 V AC.
R		Matte-Tin <sup>6</sup>		

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, with gold flash over silver plate. Or copper alloy, silver plated.

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

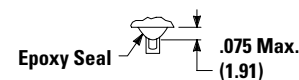
Any models supplied with Q, B, G, S P & R contact material are RoHS compliant.

All models comply with all options when ordered with G, Q, S & R contact material.

B contact material standard with all terminations.

P R & S contact materials not available with Z terminations.

### Seal inches (mm) E Epoxy Seal



# E Series

## Sealed Miniature Rocker and Lever Handle Switches



### Available Hardware

#### J3 Actuator



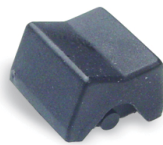
**Part No.**  
766602263 Black  
766603000 Red  
**Material:** Nylon  
**Finish:** Matte

#### J1, J11 Actuators



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

#### J50 Actuator



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

#### J60 Actuator



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

#### J90 Actuator



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

**Notes:** Additional nuts, screws and lockwashers available separately, see Technical Data section of this catalog. Other colors available, consult Customer Service Center.

#### Fits Z3 Termination female connector



**Part No.** 530100000  
Available in loose pieces.

#### Frame for J11 & J21 Actuators



**Part No.**  
764500746 Black Enamel  
**Material:** Spring Steel



**Notes:** Additional nuts, screws and lockwashers available separately, see Technical Data section of this catalog. Other colors available, consult Customer Service Center.

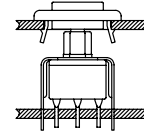
# E Series

## Sealed Miniature Rocker and Lever Handle Switches

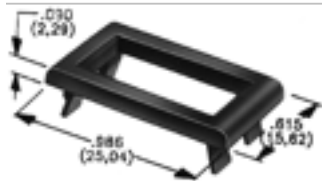


Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses 0.047-0.125 in. Material: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

### Typical Applications



### J1 & J2 Actuators



0.047" (1.19) Panel THK. <b>Part No.</b> 452902263	0.062" (1.57) Panel THK. <b>Part No.</b> 452702263	0.090" (2.29) Panel THK. <b>Part No.</b> 452802263	0.125" (3.18) Panel THK. <b>Part No.</b> 452602263 Black
----------------------------------------------------------	----------------------------------------------------------	----------------------------------------------------------	----------------------------------------------------------------

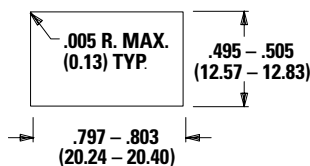
### J50, J60 & J90 Actuators



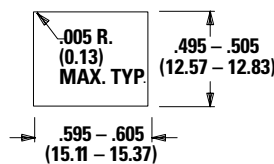
0.047" (1.19) Panel THK. <b>Part No.</b> 432502263	0.062" (1.57) Panel THK. <b>Part No.</b> 432602263	0.090" (2.29) Panel THK. <b>Part No.</b> 432702263	0.125" (3.18) Panel THK. <b>Part No.</b> 432802263 Black
----------------------------------------------------------	----------------------------------------------------------	----------------------------------------------------------	----------------------------------------------------------------

### Panel Mounting

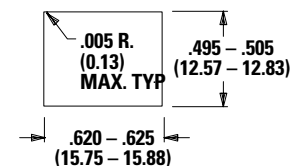
For part numbers  
4529xxxxx. 4527xxxxx.  
4528xxxxx. 4526xxxxx



For part numbers  
4325xxxxx. 4326xxxxx

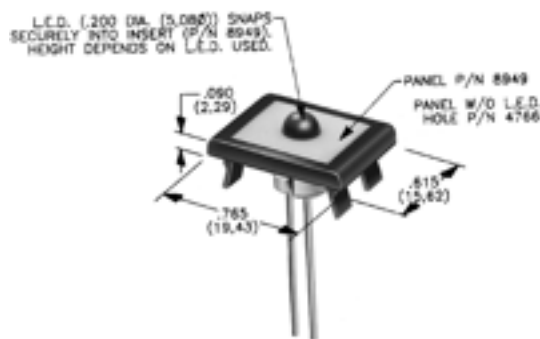


For part numbers  
4327xxxxx. 4328xxxxx



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



Panel Insert with  
Hole for LED  
**Part No.**  
894903000 Red

Blank Panel Insert  
without Hole for LED  
**Part No.**  
476602000 Black

**Notes:** Special colors, custom markings available, consult Customer Service Center. Will fit separate snap-in frames for J50, J60 & J90 actuators

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