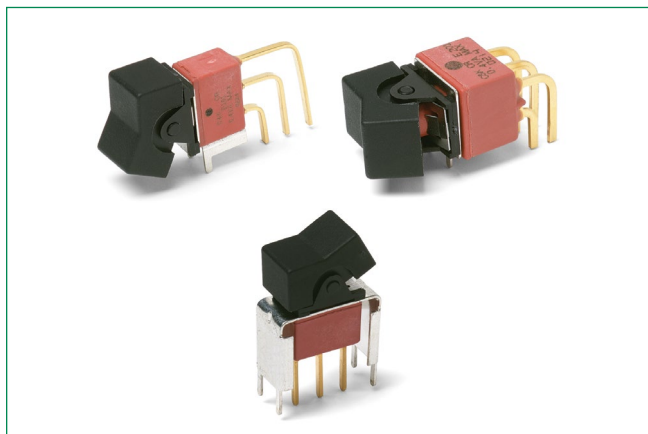


E Series

Sealed Miniature Rocker and Lever Handle Switches



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

Agency Approvals

Agency	Agency File Number
	E42363

Applications

- Telecommunications
- Instrumentation
- Computers & peripherals

Specifications

Contact Rating	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.
Electrical Life	E1XX and E2XX models: 40,000 make-and-break cycles at full load. E3XX models: 30,000 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.
Electrostatic Discharge (ESD) Option	All actuator options: 15,000 V DC max. @ sea level, actuator to terminals.
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).

Materials

Case & Bushing	Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0).
Actuator	Nylon, black standard, internal o-ring seal standard with all actuators.
Frame	Spring steel, black standard
Switch Support	Brass or steel, matte-tin plated.
Actuator Pivot & Mounting Bracket	Nylon
Actuator Pivot Retainer	Stainless steel
Contacts & Terminals	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.
Terminal Seal	Epoxy.
Hardware	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



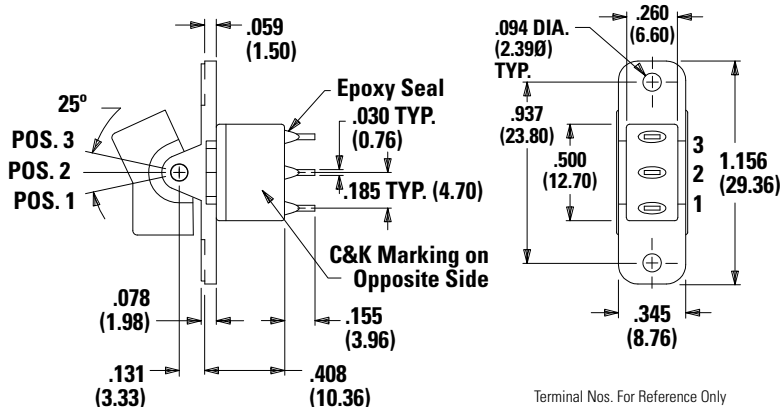
Ordering Number

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

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	2-3	N/A	2-1		
	E103								
	E105	MOM	OFF	MOM.		OPEN			
	E107	ON		MOM.					
	E108		NONE			N/A			



Notes: Part number shown: E101J1ZBE2

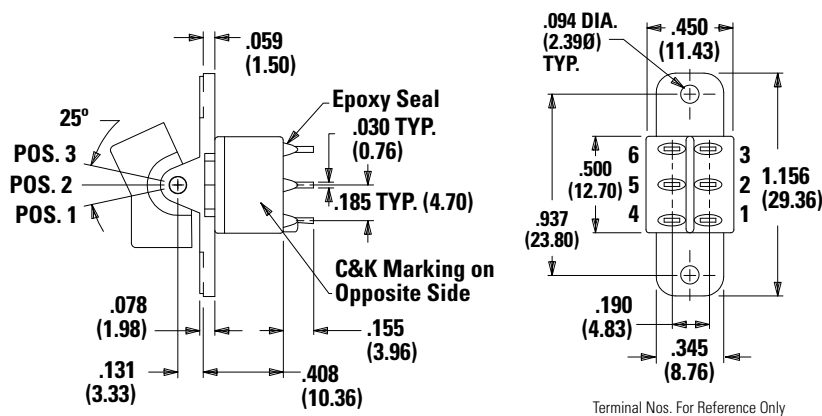
E Series

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	DPDT 						
	E203		OFF			OPEN								
	E205	MOM	MOM.			N/A								
	E207	ON							NONE					
	E208		ON											
	E211 ¹		ON	MOM.		2-3,5-4								
	E213 ¹			MOM.										
	E215 ¹	MOM.												



Notes: MOM. = Momentary, Part number shown: E201J1ZBE2. All models us with all options when ordered with G, Q, R or S contact material.

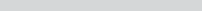
1. Wiring for 3-way switch. Hardware available separately, see Technical Data section of this catalog.

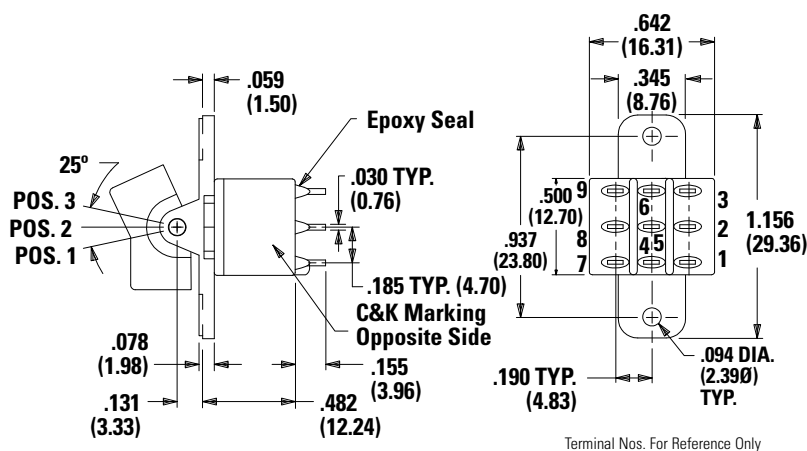
E Series

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		



Notes: MOM. = Momentary, Part number shown: E301J1ZQE2. All models c

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



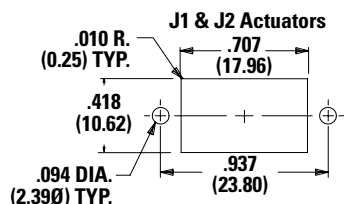
Actuator-Panel Rear Mount

Option Code	Actuator Color
2	Black
3	Red

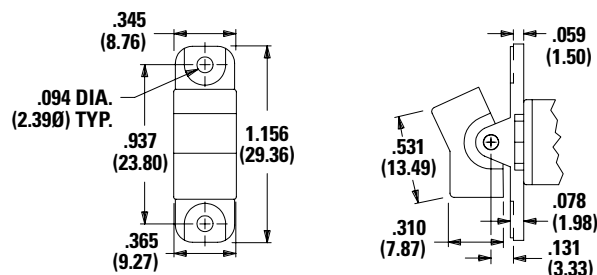
Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

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.

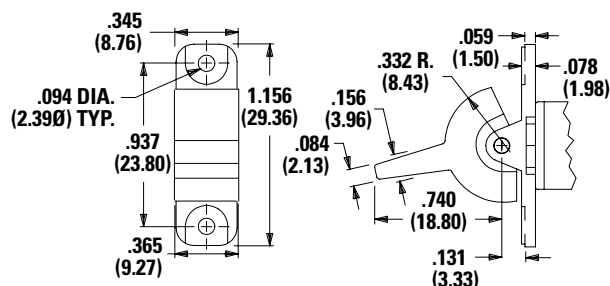
Panel Mounting



J1 Level



J2 Level



Actuator-Rear Mount

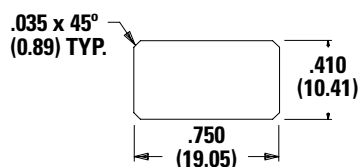
Option Code	Actuator Color
2	Black
3	Red

Option Code	Frame Color
2	Black

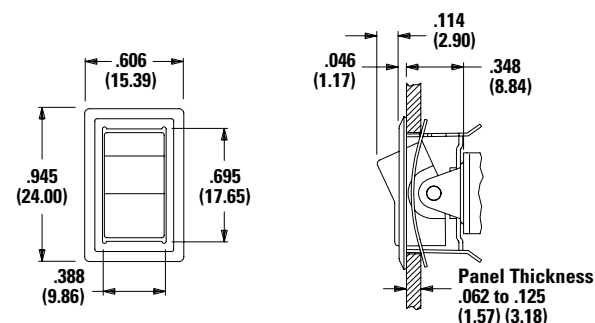
Finish: Matte. Matte, frame finish: gloss. Other colors, custom actuator markings and legends available, consult Customer Service Center.

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

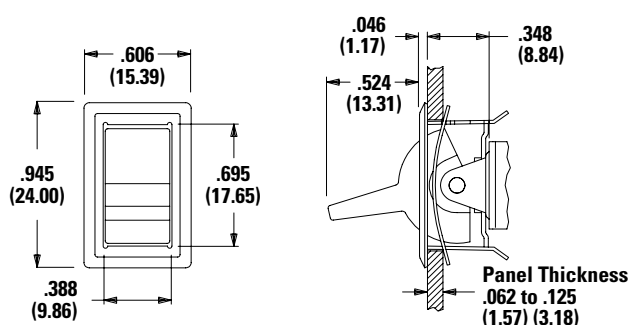


J11 Rocker with Frame



Notes: This option has reduced anti-static capability.

J21 Lever with Frame



Notes: This option has reduced anti-static capability.

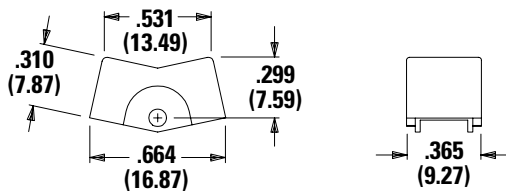
E Series

Sealed Miniature Rocker and Lever Handle Switches

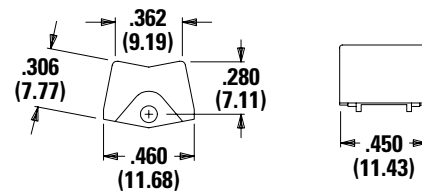


Actuator-PC Mount

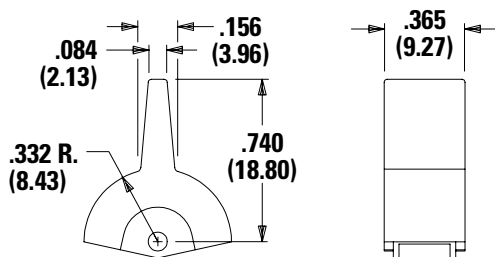
J1 Rocker



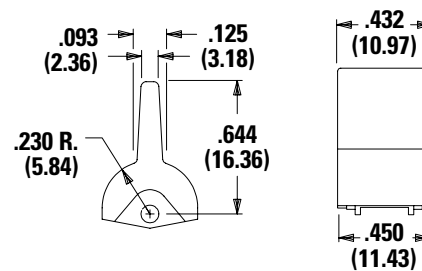
J50 Rocker



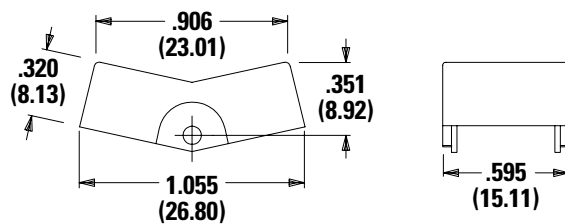
J2 Lever



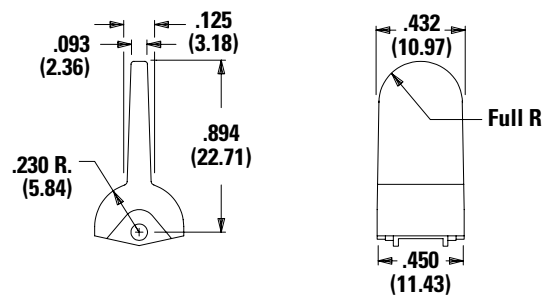
J60 Lever



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.

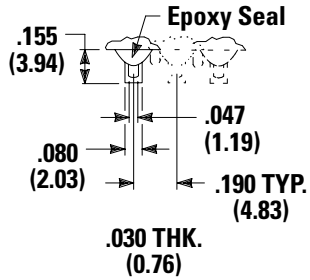
E Series

Sealed Miniature Rocker and Lever Handle Switches

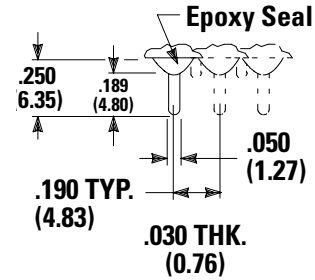


Terminations

Z Solder Lug SPDT thru 3PDT

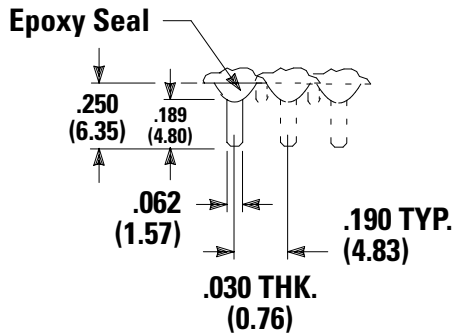


C PCThru-hole SPDT thru 3PDT

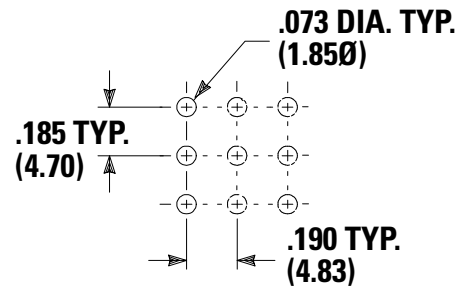


Notes: Not available with P, S, & R contact materials. Available actuators, see page 4-5.

Z3 Quick Connect SPDT thru 3PDT

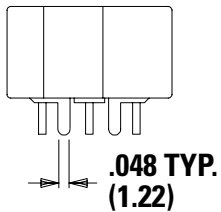


PC Mounting

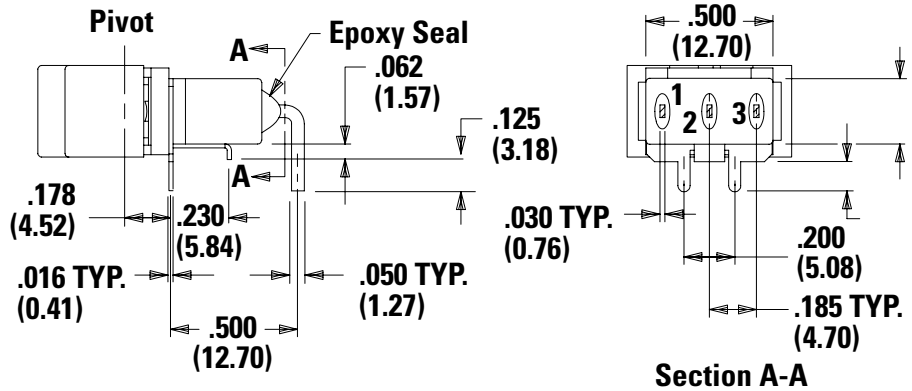


Notes: Not available with P, S, & R contact materials. Available actuators, see pages 4-5. Mating quick connector available; order part number 530100000, page 13.

A Right Angle, PCThru-hole E101J1ABE2 Horizontal Actuation SPDT



Actuator Shown In Pos. 1



Section A-A

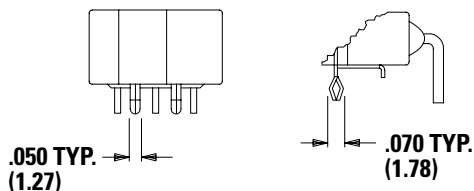
E Series

Sealed Miniature Rocker and Lever Handle Switches



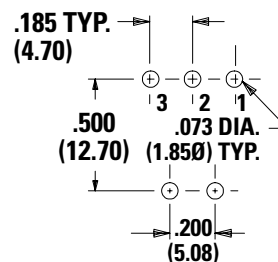
A3 Right Angle, Snap-in, PC Thru-hole

Dimensions



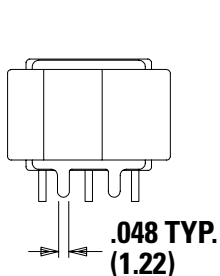
Notes: Not available with J3, J50, J60 and J90 actuators. Available actuators, see pages 4-5. Terminal bend radii and lead-in manufacturing option.

PC Mounting

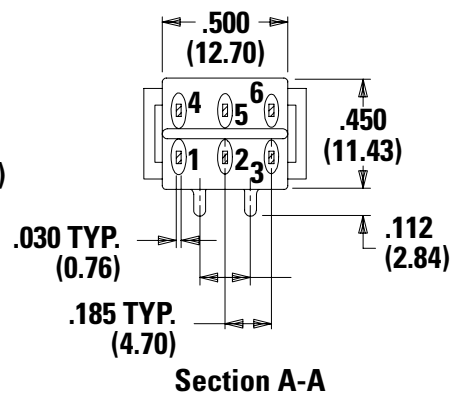
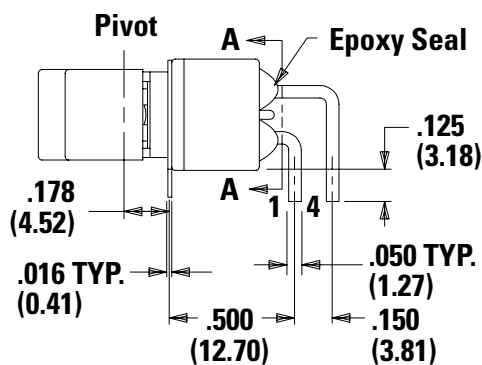


Notes: PC mounting pattern must clear switch support leg.

A Right Angle, PC Thru-hole E20J1ABE2 Horizontal Actuation DPDT

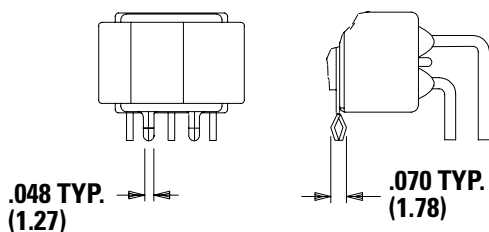


Actuator Shown In Pos. 1



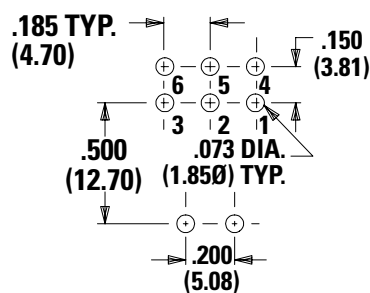
A3 Right Angle, Snap-in, PC Thru-hole

Dimensions



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

PC Mounting

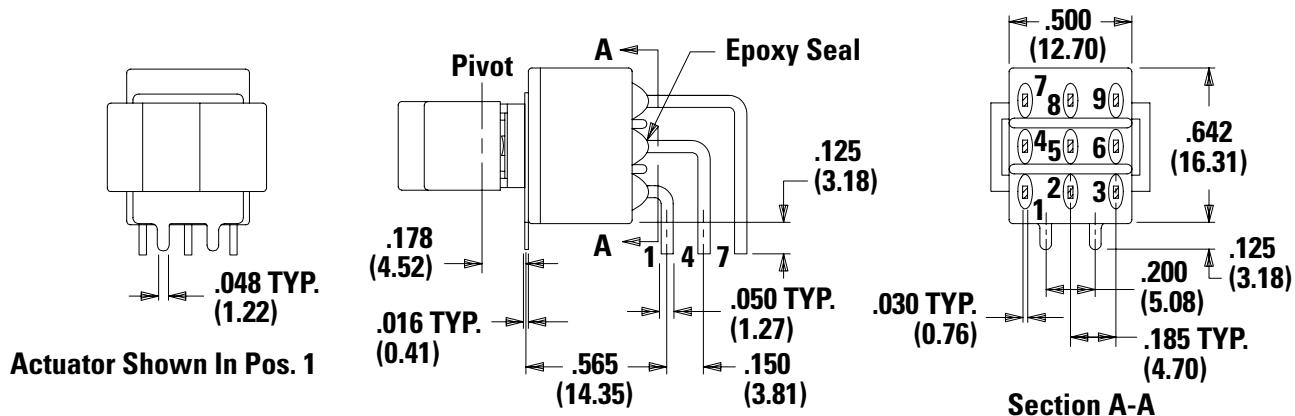


E Series

Sealed Miniature Rocker and Lever Handle Switches

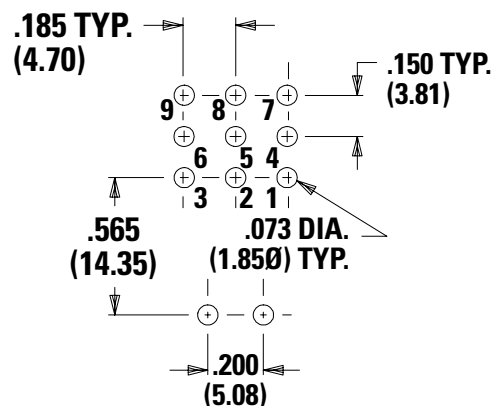


A Right Angle, PC Thru-hole E301J1ABE2 Horizontal Actuation 3PDT

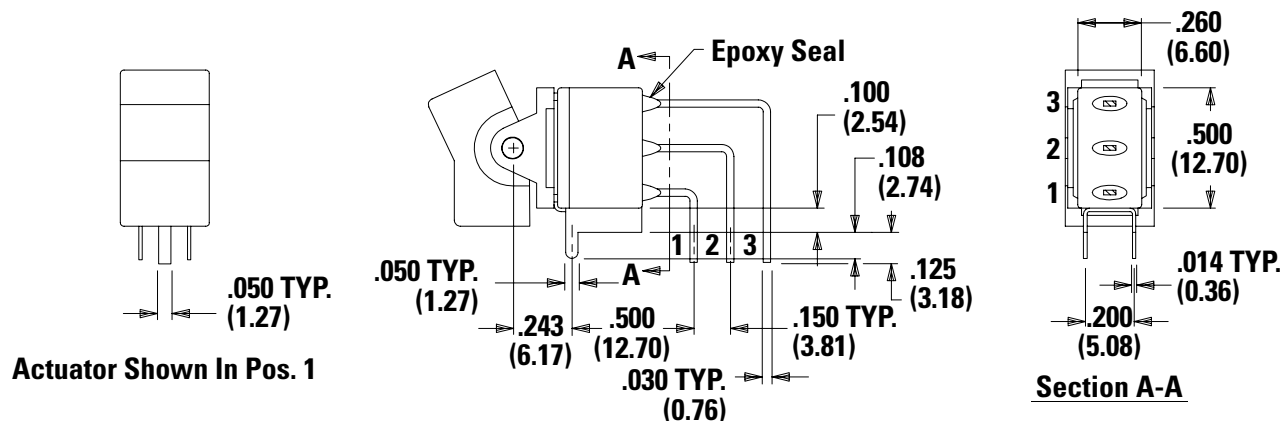


Notes: Terminal bend radii and lead-in manufacturing option. Available actuators, see pages 4-5.

PC Mounting



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



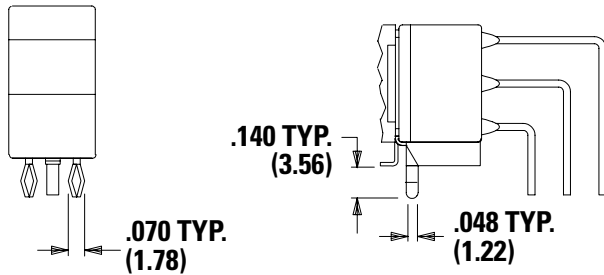
E Series

Sealed Miniature Rocker and Lever Handle Switches

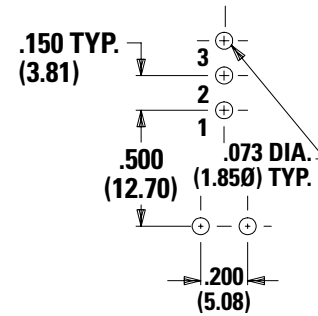


AV3 Vertical Right Angle, Snap-in PC Thru-hole, 0.150" Pitch

Dimensions

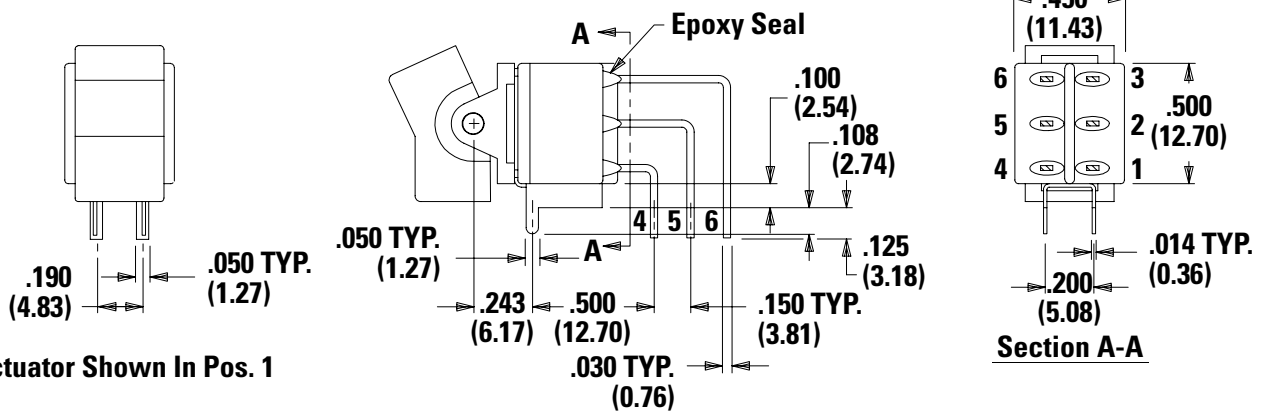


PC Mounting



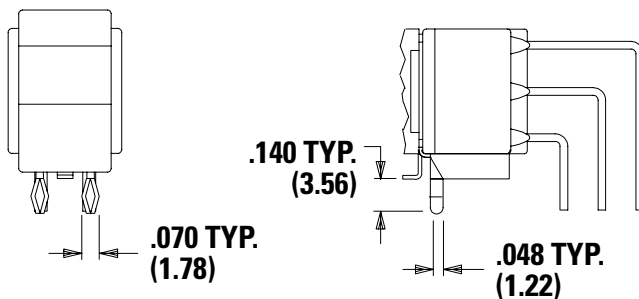
Notes: Terminal bend radii and lead-in manufacturing option. Available actuators, see pages 4-5.

AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch E201J1AV2BE2 Vertical Actuation DPDT

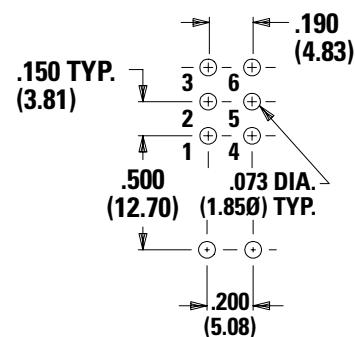


AV3 Vertical Right Angle, Snap-in PC Thru-hole, 0.150" Pitch

Dimensions



PC Mounting



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

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



PC Mounting



PC Mounting



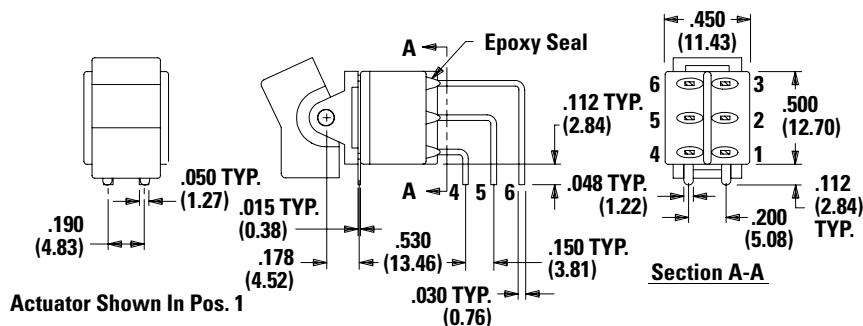
E Series

Sealed Miniature Rocker and Lever Handle Switches

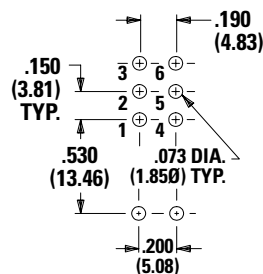


V5 Vertical Right Angle, PC Thru-Hole, 0.150" Pitch E201J1V5BE2 Vertical Actuation DPDT

Dimensions

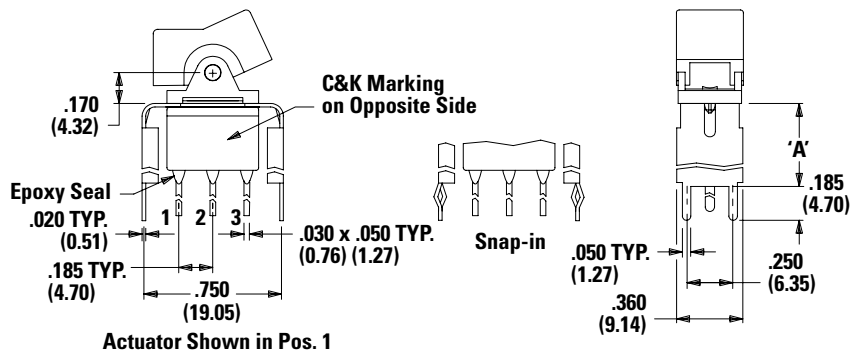


PC Mounting

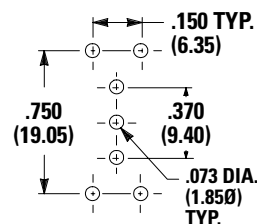


V6, V7, V8 Vertical Mount, V Bracket V21 Vertical Mount, V Bracket, Snap-in E101J1_BE2 SPDT

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)

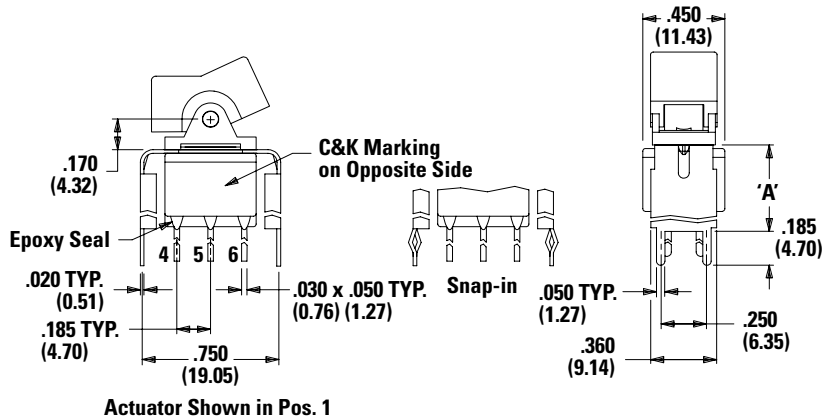
E Series

Sealed Miniature Rocker and Lever Handle Switches



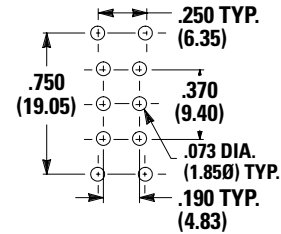
V6, V7, V8 Vertical Mount, V Bracket V21 Vertical Mount, V Bracket, Snap-in E201J1_BE2 DPDT

Dimensions



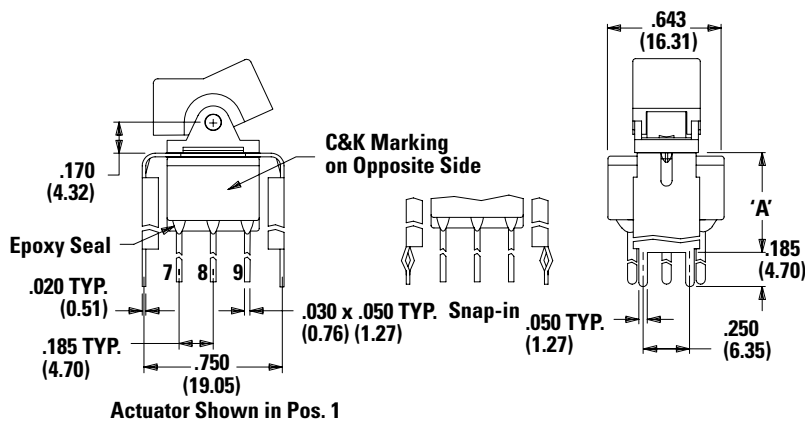
Notes: Available actuators, see pages 4-5.

PC Mounting



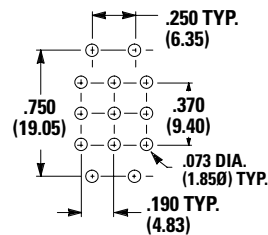
Option Code	DIM 'A'
V21	0.555 (14.10)
V6	0.460 (11.68)
V7	0.630 (16.00)
V8	0.953 (24.21)

V7, V8 Vertical Mount, V Bracket V21 Vertical Mount, V Bracket, Snap-in E301J1_BE2 3PDT



Notes: Available actuators, see pages 4-5.

PC Mounting



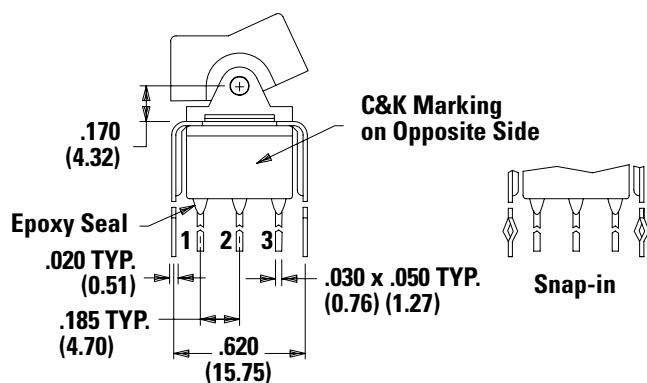
Option Code	DIM 'A'
V21	0.555 (14.10)
V7	0.630 (16.00)
V8	0.958 (24.21)

E Series

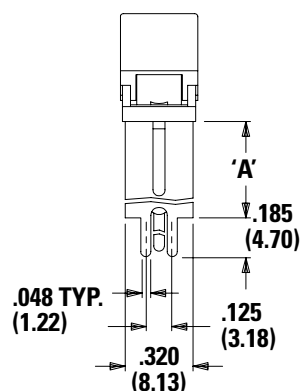
Sealed Miniature Rocker and Lever Handle Switches



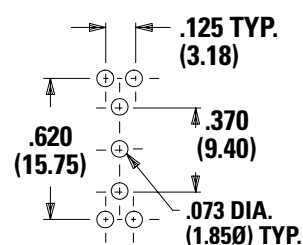
V3, V4 Vertical Mount, V Bracket V31 Vertical Mount, V Bracket, Snap-in E101J1_BE2 SPDT



Notes: Available actuators, see pages 4-5.

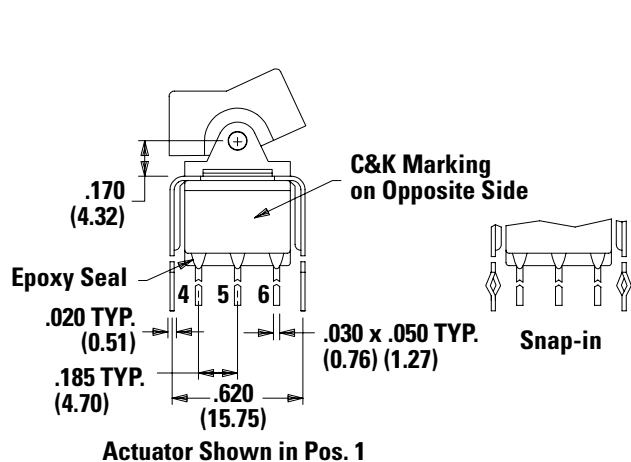


PC Mounting

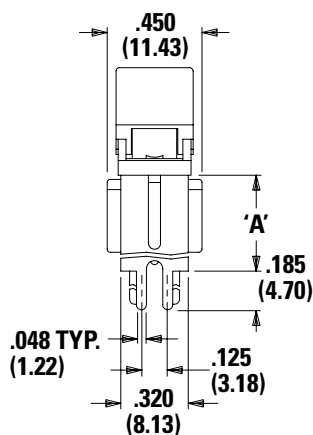


Option Code	DIM 'A'
V3, V31	0.460 (11.68)
V4	0.630 (16.00)

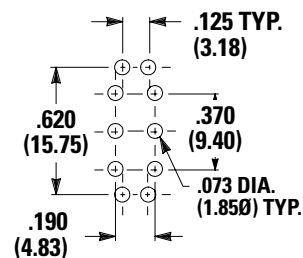
V3, V4 Vertical Mount, V Bracket V31 Vertical Mount, V Bracket, Snap-in E201J1_BE2 DPDT



Notes: Available actuators, see pages 4-5.



PC Mounting



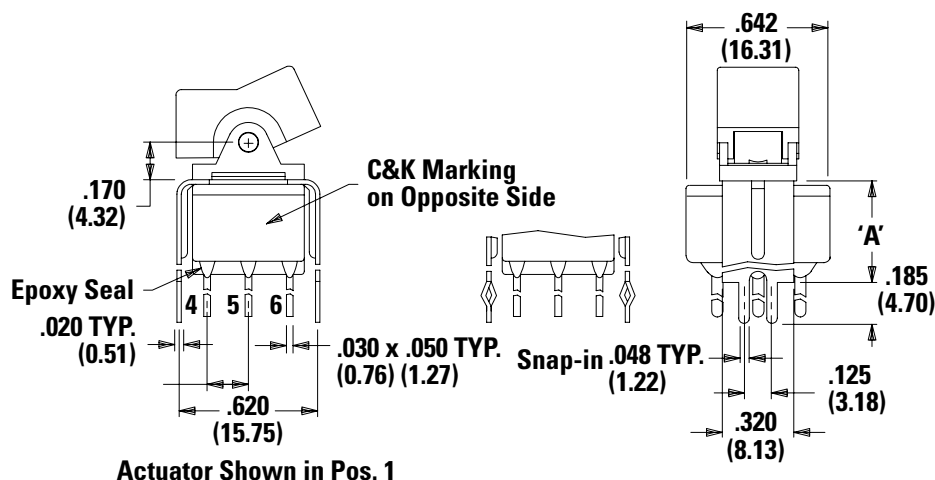
Option Code	DIM 'A'
V3, V31	0.460 (11.68)
V4	0.630 (16.00)

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 ¹	Gold ¹	Low Level/Dry Circuit	0.4 VA max. @ 20 V AC or DC max.
P		Matte-Tin ⁷		
Q	Silver ^{4,5}	Silver ⁵	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 ⁶		
G	Gold over Silver ^{2,3}	Gold ³	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 ⁶		

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.

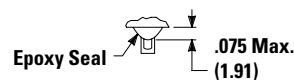
Any models supplied with Q, B, G, S P & R contact material are RoHS compliant.

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

J2, J21 Actuators



Part No.
760502263 Black
760503000 Red
Material: Nylon
Finish: Matte

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.

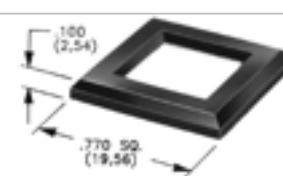
Frame for J11 & J21 Actuators



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



Frame for J50, J60 & J90 Actuators



Matte
Part No. 486702000
Material: Nylon
Finish: Matte or Gloss

Gloss
Part No. 486802000 Black

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

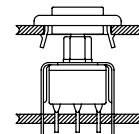
E Series

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.	0.062" (1.57) Panel THK.	0.090" (2.29) Panel THK.	0.125" (3.18) Panel THK.
Part No.	Part No.	Part No.	Part No.
452902263	452702263	452802263	452602263 Black
452903000	452703000	452803000	452603000 Red

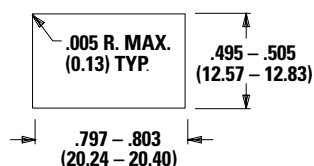
J50, J60 & J90 Actuators



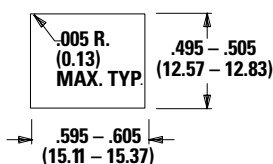
0.047" (1.19) Panel THK.	0.062" (1.57) Panel THK.	0.090" (2.29) Panel THK.	0.125" (3.18) Panel THK.
Part No.	Part No.	Part No.	Part No.
432502263	432602263	432702263	432802263 Black
432503000	432603000	432703000	432803000 Red

Panel Mounting

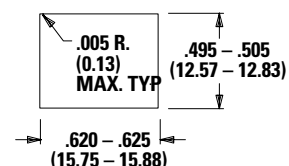
For part numbers
4529xxxxx. 4527xxxxx.
4528xxxxx. 4526xxxxx



For part numbers
4325xxxxx. 4326xxxxx

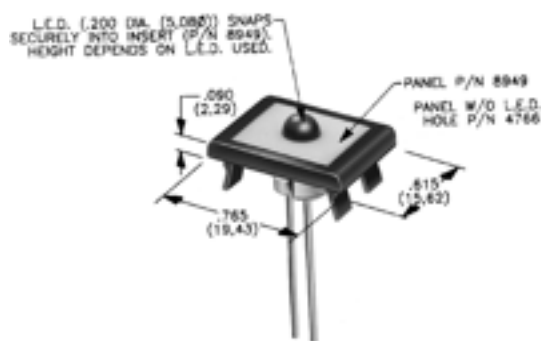


For part numbers
4327xxxxx. 4328xxxxx



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.
894902000
894903000

Blank Panel Insert
without Hole for LED

Part No.
476602000 Black
476603000 Red

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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