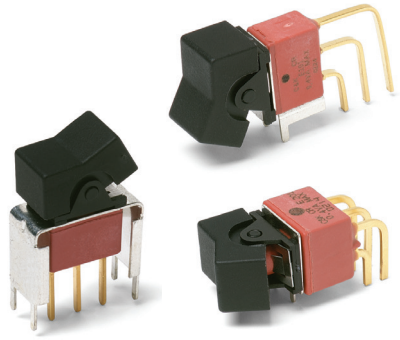
Features/Benefits

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

Typical 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 G-36 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 G-36 for additional contact materials.

TERMINAL SEAL: Epoxy.

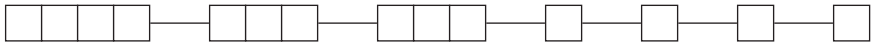
HARDWARE: Nut, Screw & Lockwasher: Stainless steel. Standoff: Nylon standard, aluminum available, consult Customer Service Center.

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

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages G-26 through G-38. 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.



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** .531 long rocker
- **J2** Lever
- **J3** .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** .460" high, V-bracket
- **V4** .630" high, V-bracket
- **V5** Vertical right angle, PC thru-hole
- **V6** .460" high, V-bracket
- **V7** .630" high, V-bracket
- **V8** .953" high, V-bracket
- **V21** .555" high, V-bracket, snap-in
- **V31** .460" high, V-bracket, snap-in

Contact Material
- **B** Gold
- **P** Gold, matte tin
- **Q** Silver
- **S** Silver, matte-tin
- **G** Gold over silver
- **R** Gold over silver, matte-tin

Seal
- **E** Epoxy

Actuator Color
- **2** Black
- **3** Red

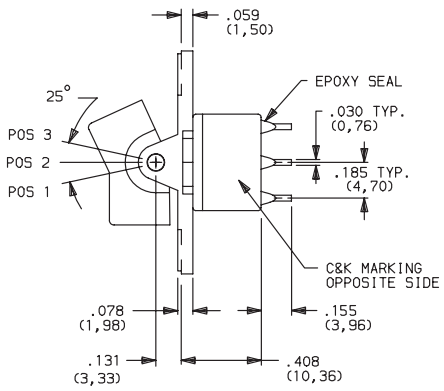
Frame Color
- **2** Black
- **NONE** No frame color required

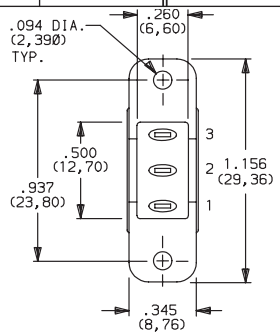
Metal Frame Color
(J11, J21 Actuators)
- **2** Black

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1	SWITCH FUNCTION POS. 2	SWITCH FUNCTION POS. 3	CONNECTED TERMINALS POS. 1	CONNECTED TERMINALS POS. 2	CONNECTED TERMINALS POS. 3	SCHEMATIC
		C&K marking on opposite side			C&K marking on opposite side			
SP	**E101**	ON	NONE	ON	2-3	N/A	2-1	SPDT
	E103	ON	OFF	ON		OPEN		
	E105	MOM.	OFF	MOM.				
	E107	ON	OFF	MOM.				
	E108	ON	NONE	MOM.		N/A		

SPDT



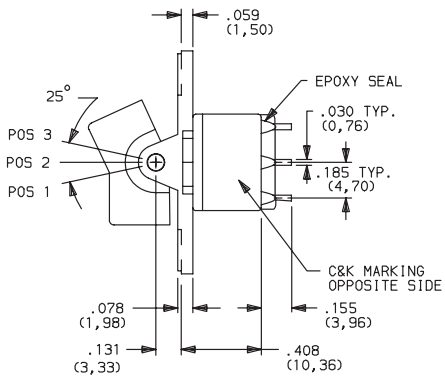


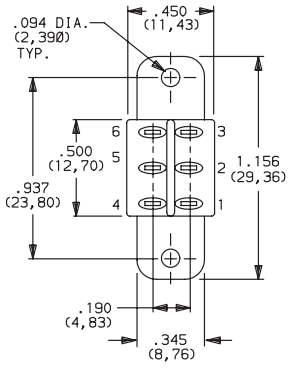
Terminal Nos.
For Reference Only

Part number shown: E101J1ZBE2

DP	**E201**	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	DPDT
	E203	ON	OFF	ON		OPEN		
	E205	MOM.	OFF	MOM.				
	E207	ON	OFF	MOM.				
	E208	ON	NONE	MOM.		N/A		
	E211**	ON	ON	ON		2-3,5-4		
	E213**	ON	ON	MOM.				
	E215**	MOM.	ON	MOM.				

DPDT





Terminal Nos.
For Reference Only

Part number shown: E201J1ZBE2

MOM. = Momentary

All models cULus with all options when ordered with G, Q, R or S contact material.

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

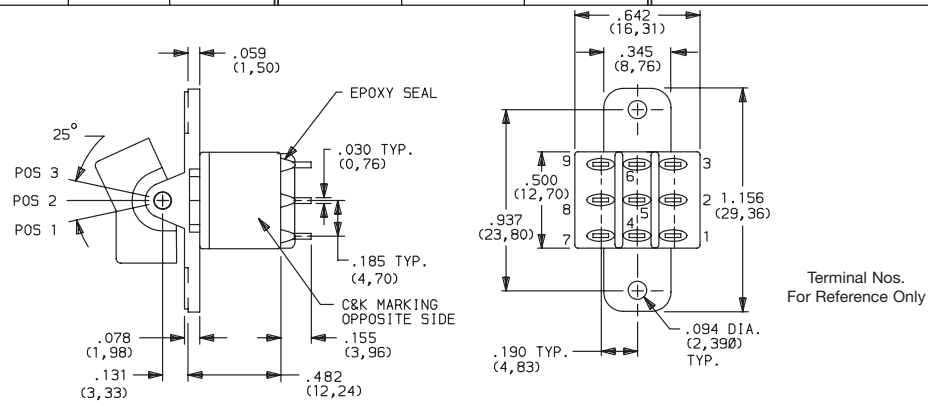
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1	SWITCH FUNCTION POS. 2	SWITCH FUNCTION POS. 3	CONNECTED TERMINALS POS. 1	CONNECTED TERMINALS POS. 2	CONNECTED TERMINALS POS. 3	SCHEMATIC
		C&K marking on opposite side			C&K marking on opposite side			
3P	E301	ON	NONE	ON	2-3,5-6,8-9	N/A	2-1,5-4,8-7	3PDT

3PDT



Part number shown: E301J1ZBE2

MOM. = Momentary

** Wiring for 3-way switch, see Technical Data section of this catalog.

All models cULus with all options when ordered with G, Q, R and S contact material.

ACTUATOR–PANEL REAR MOUNT

ACTUATOR COLOR
ACTUATOR

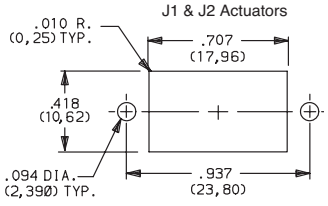
OPTION CODE	ACTUATOR COLOR
2	BLACK
3	RED

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

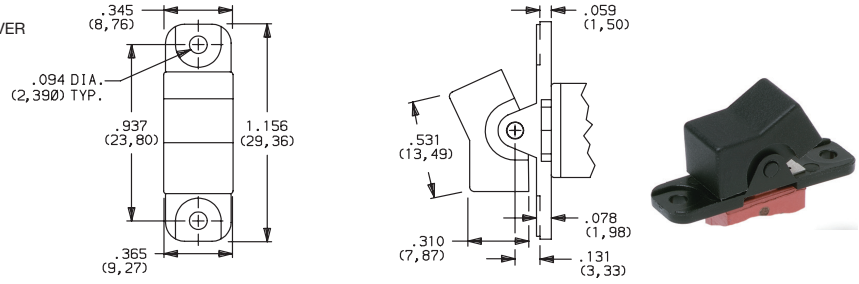
NOTE: Hardware: two each—mounting screws, nuts, lockwashers and standoffs for 1/8 inch thick panel are supplied standard on switches with panel mounting bracket. Internal o-ring actuator seal standard. Actuators available separately, see page G-36. Hardware available seperately, see Technical Data section of this catalog. J1, J2 actuators available with C, Z or Z3 terminations.

PANEL MOUNTING

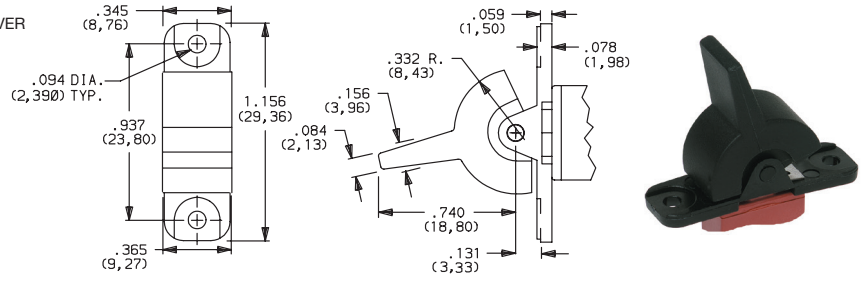
J1 & J2 Actuators



J1 LEVER



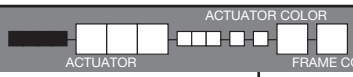
J2 LEVER



Third Angle Projection

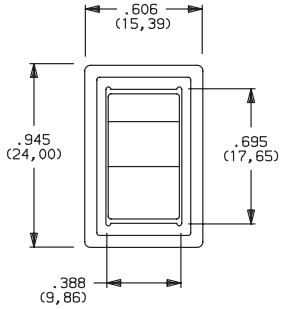
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

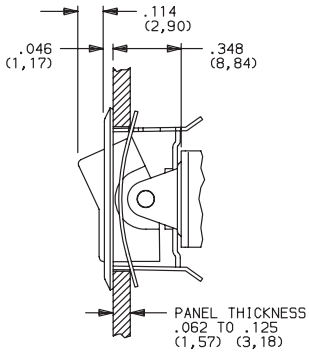
ACTUATOR–REAR MOUNT



J11 ROCKER WITH FRAME







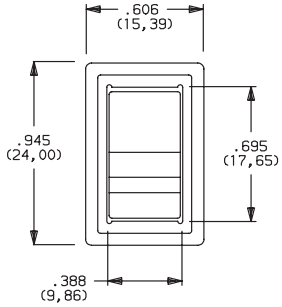
NOTE: This option has reduced anti-static capability.

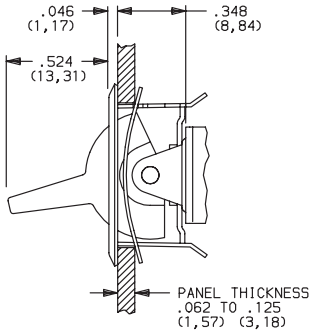
OPTION CODE	ACTUATOR COLOR
2	BLACK
3	RED

OPTION CODE	FRAME COLOR
2	BLACK

J21 LEVER WITH FRAME





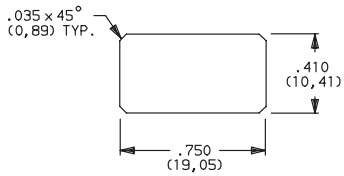


NOTE: This option has reduced anti-static capability.

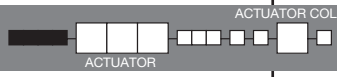
Actuator finish: Matte, frame finish: gloss. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Internal o-ring actuator seal standard. Actuators & frames available separately, see page G-36. Hardware available seperately, see Technical Data section of this catalog. J11 & J21 actuators available with C, Z & Z3 terminations.

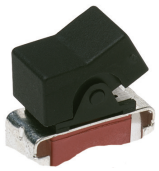
PANEL MOUNTING

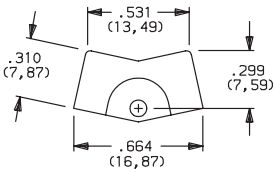


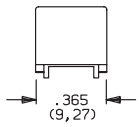
ACTUATOR–PC MOUNT



J1 ROCKER



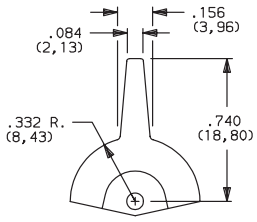


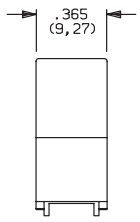


OPTION CODE	ACTUATOR COLOR
2	BLACK
3	RED

J2 LEVER

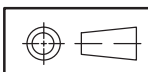






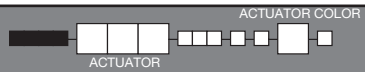
Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Hardware: two each—mounting screws, nuts, lockwashers 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 G-36. Hardware available seperately, see Technical Data section of this catalog. J1, J2 actuators available with A, A3, AV2, AV3, V2-V61 terminations.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ACTUATOR–PC MOUNT



OPTION CODE	ACTUATOR COLOR
2	BLACK
3	RED

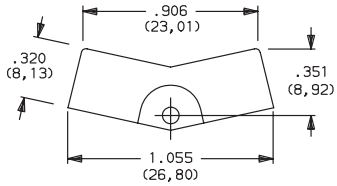
Finish: Matte. Other colors, custom actuator markings and legends available, consult Customer Service Center.

NOTE: Hardware: two each—mounting screws, nuts, lockwashers 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 G-36. Hardware available seperately, see Technical Data section of this catalog.

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.

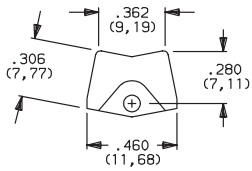
J50, J60 & J90 actuators available with A, AV2, AV3, V2 – V61 terminations.

J3 ROCKER



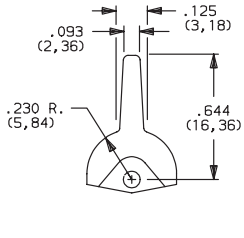


J50 ROCKER



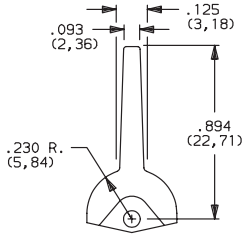


J60 LEVER





J90 LEVER

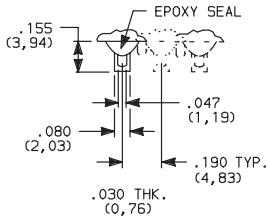




TERMINATIONS



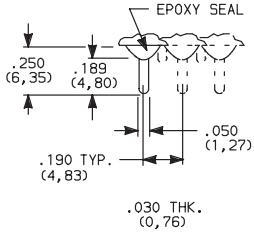
Z SOLDER LUG

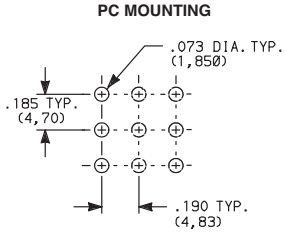


SPDT thru 3PDT

Not available with P, S, & R contact materials.
Available actuators, see page G-27-28.

C PC THRU-HOLE





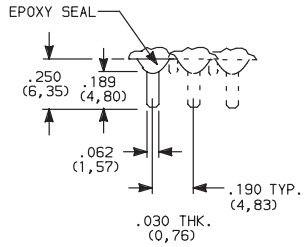
SPDT thru 3PDT

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TERMINATIONS

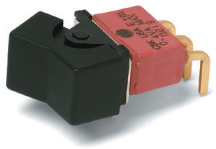
Z3 QUICK CONNECT



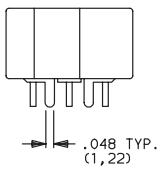
SPDT thru 3PDT

Not available with P, S, & R contact materials. Available actuators, see pages G-27 thru G-28. Mating quick connector available; order part number 530100000, page G-37.

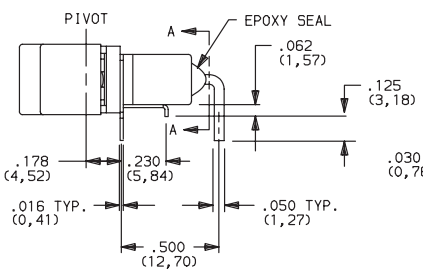
A RIGHT ANGLE, PC THRU-HOLE

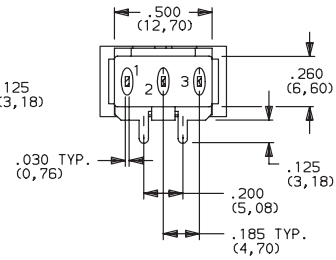


E101J1ABE2
Horizontal Actuation
SPDT



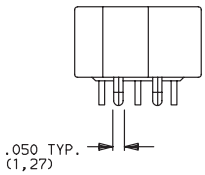
Actuator Shown In Pos. 1

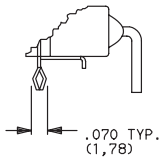




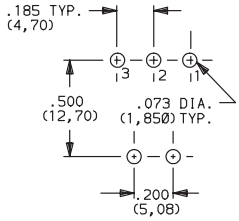
SECTION A-A

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE





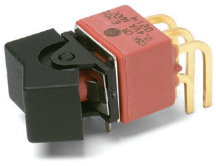
PC MOUNTING



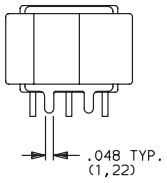
NOTE: Not available with J3, J50, J60 and J90 actuators.
Available actuators, see pages G-27 thru G-29.
Terminal bend radii and lead-in manufacturing option.

NOTE: PC mounting pattern must clear switch support leg.

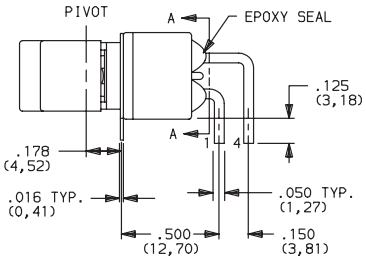
A RIGHT ANGLE, PC THRU-HOLE

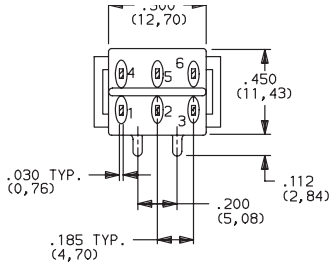


E201J1ABE2
Horizontal Actuation
DPDT



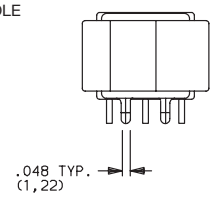
Actuator Shown In Pos. 1

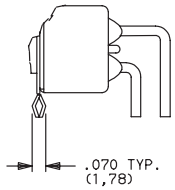




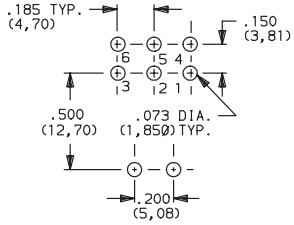
SECTION A-A

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE





PC MOUNTING



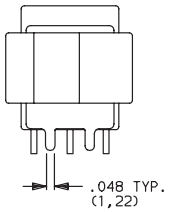
NOTE: Not available with J3 actuator.
Available actuators, see pages G-27 thru G-29.
Terminal bend radii and lead-in manufacturing option.

Third Angle Projection

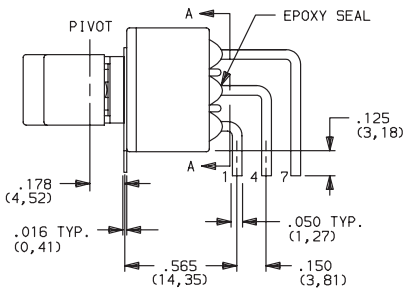
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

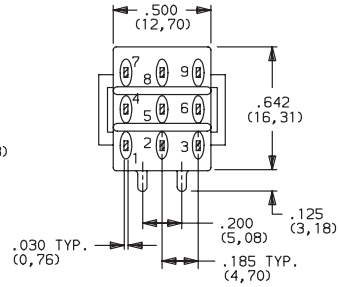
TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE



Actuator Shown In Pos. 1



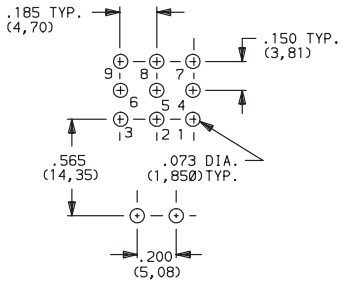


SECTION A-A



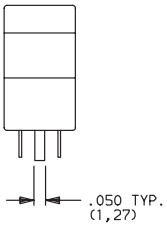
E301J1ABE2
Horizontal Actuation
3PDT

PC MOUNTING

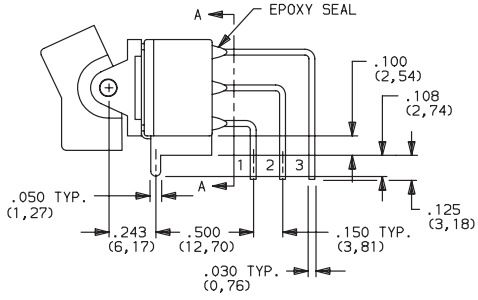


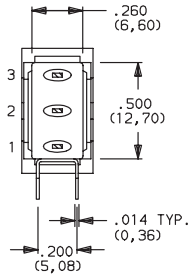
NOTE: Terminal bend radii and lead-in manufacturing option.
Available actuators, see pages G-27 thru G-29.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

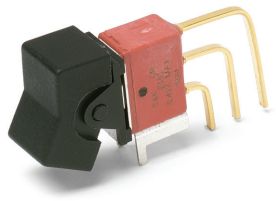


Actuator Shown In Pos. 1



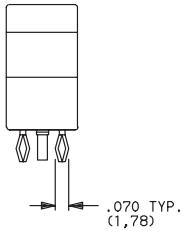


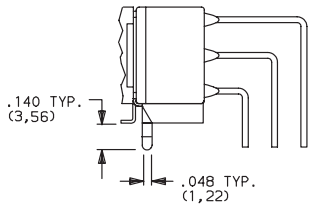
SECTION A-A



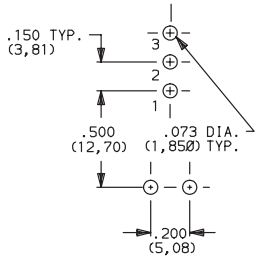
E101J1AV2BE2
Vertical Actuation
SPDT

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH





PC MOUNTING



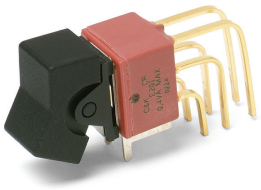
NOTE: Terminal bend radii and lead-in manufacturing option.
Available actuators, see pages G-27 thru G-29.

Third Angle Projection

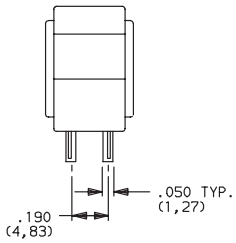
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TERMINATIONS

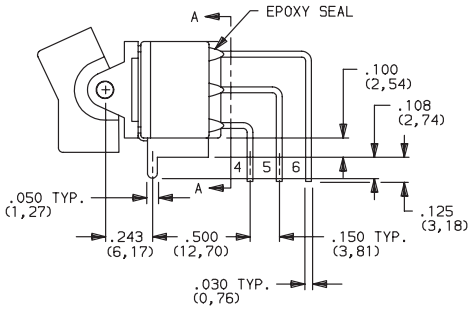
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

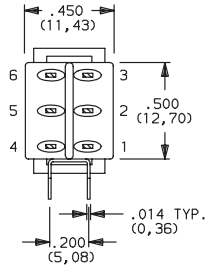


E201J1AV2BE2
Vertical Actuation
DPDT



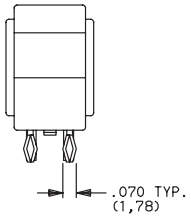
Actuator Shown In Pos. 1

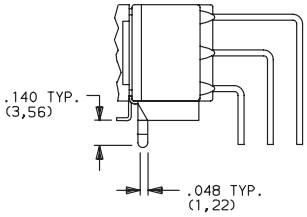




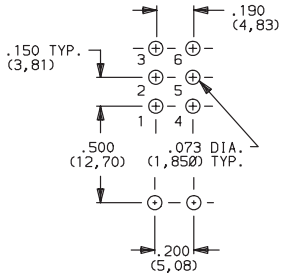
SECTION A-A

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



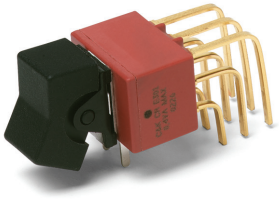


PC MOUNTING

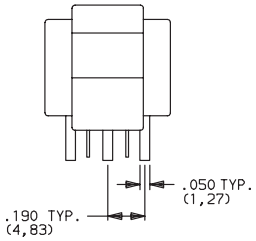


NOTE: Terminal bend radii and lead-in manufacturing option.
Available actuators, see pages G-27 thru G-29.

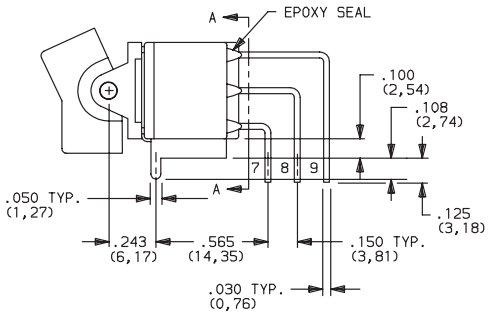
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

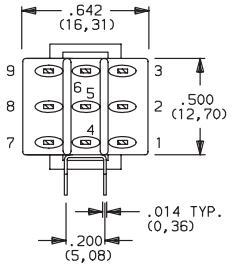


E301J1AV2BE2
Vertical Actuation
3PDT



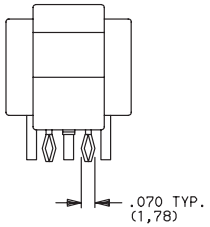
Actuator Shown In Pos. 1

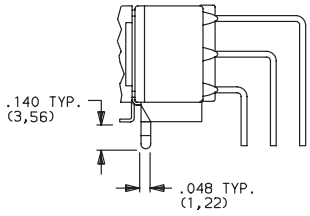




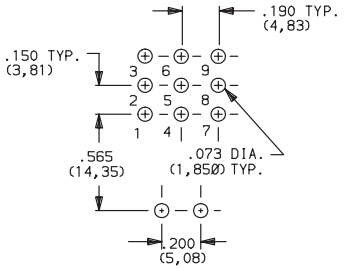
SECTION A-A

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH





PC MOUNTING



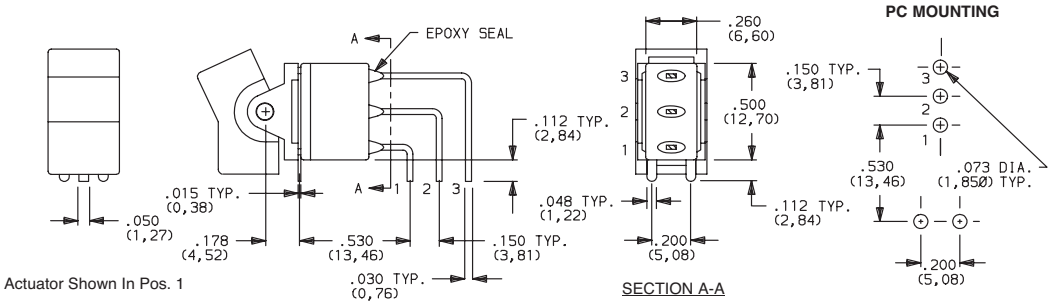
NOTE: Terminal bend radii and lead-in manufacturing option.
Available actuators, see pages G-27 thru G-29.

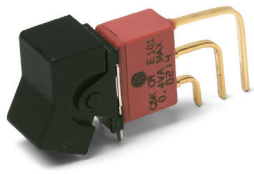
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TERMINATIONS

V5 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

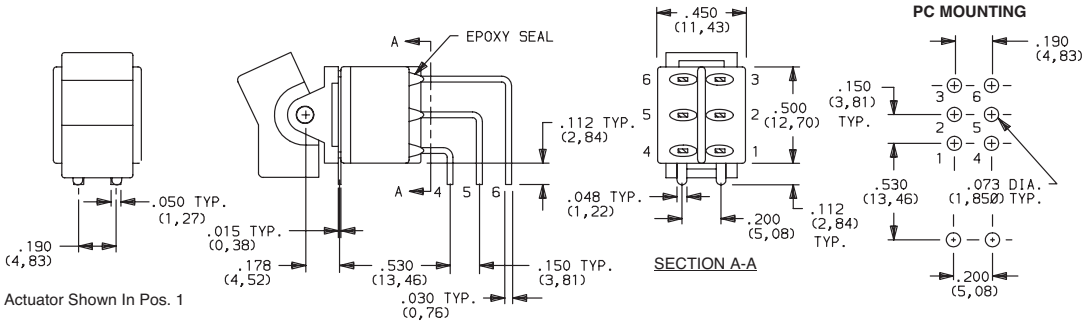


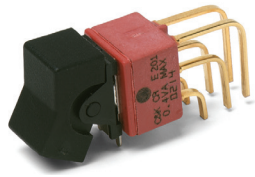


E101J1V5BE2
Vertical Actuation
SPDT

NOTE: Terminal bend radii and lead-in manufacturing option.
Available actuators, see pages G-27 thru G-29.

V5 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



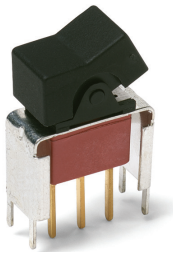


E201J1V5BE2
Vertical Actuation
DPDT

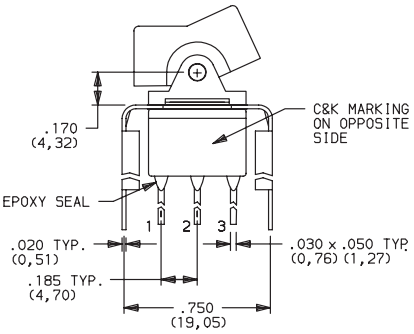
NOTE: Terminal bend radii and lead-in manufacturing option.
Available actuators, see pages G-27 thru G-29.

TERMINATIONS

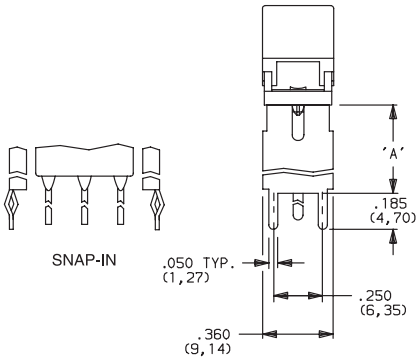
V6, V7, V8 VERTICAL MOUNT, V-BRACKET
V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



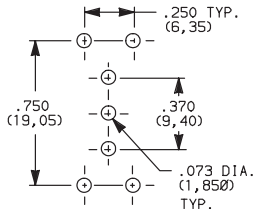
E101J1__BE2
SPDT



Actuator Shown In Pos. 1



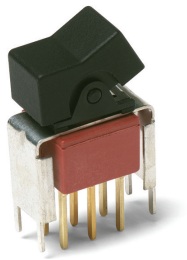
PC MOUNTING



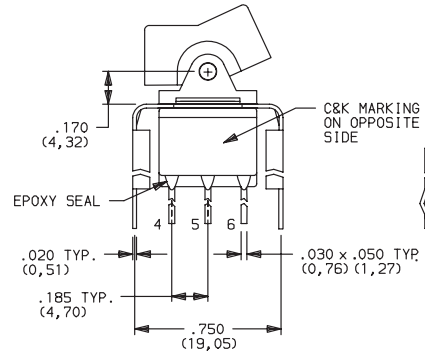
OPTION CODE	DIM 'A'
V21	.555 (14, 10)
V6	.460 (11, 68)
V7	.630 (16, 00)
V8	.953 (24, 21)

NOTE: Available actuators, see pages G-27 thru G-29.

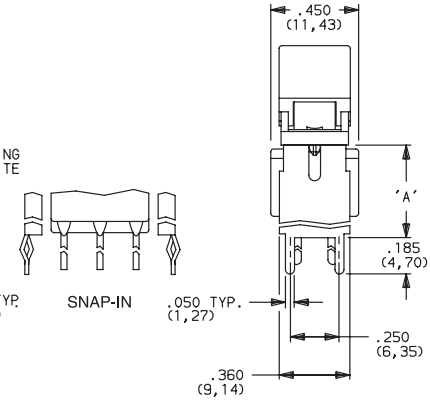
V6, V7, V8 VERTICAL MOUNT, V-BRACKET
V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



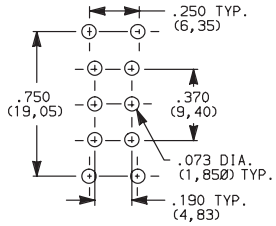
E201J1__BE2
DPDT



Actuator Shown In Pos. 1



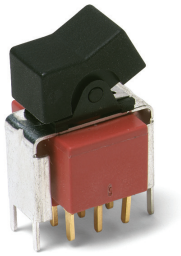
PC MOUNTING



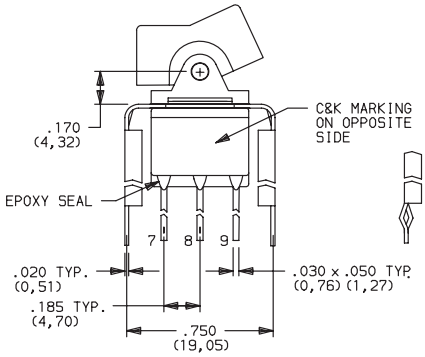
OPTION CODE	DIM 'A'
V21	.555 (14, 10)
V6	.460 (11, 68)
V7	.630 (16, 00)
V8	.953 (24, 21)

NOTE: Available actuators, see pages G-27 thru G-29.

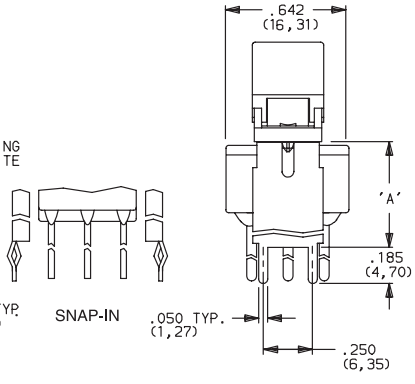
V7, V8 VERTICAL MOUNT, V-BRACKET
V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



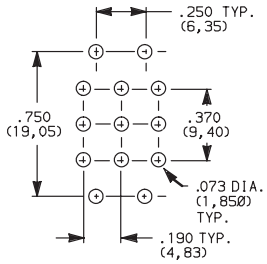
E301J1__BE2
3PDT



Actuator Shown In Pos. 1



PC MOUNTING



OPTION CODE	DIM 'A'
V21	.555 (14, 10)
V7	.630 (16, 00)
V8	.953 (24, 21)

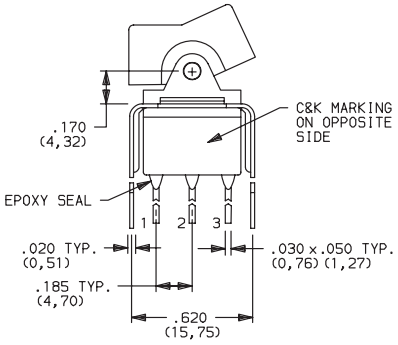
NOTE: Available actuators, see pages G-27 thru G-29.

Third Angle Projection

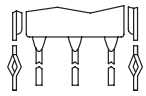
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

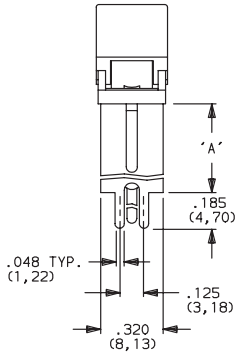
TERMINATIONS

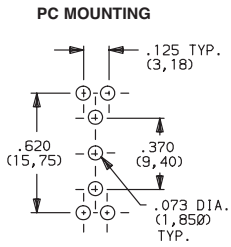
V3, V4 VERTICAL MOUNT, V-BRACKET
V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN

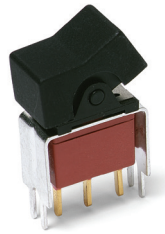


Actuator Shown In Pos. 1







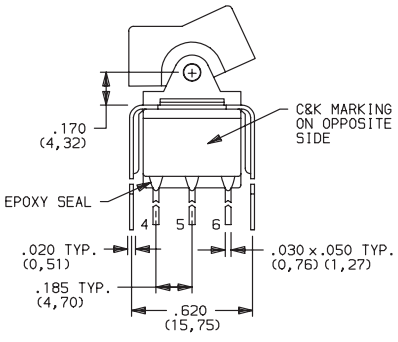


E101J1__BE2
SPDT

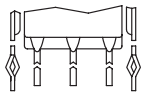
OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)

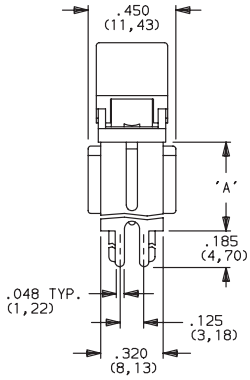
NOTE: Available actuators, see pages G-27 thru G-29.

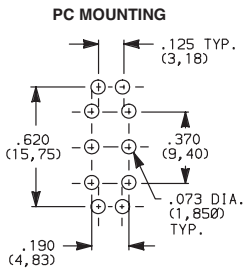
V3, V4 VERTICAL MOUNT, V-BRACKET
V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN

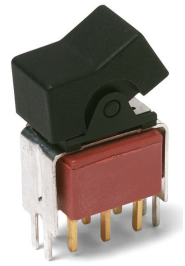


Actuator Shown In Pos. 1









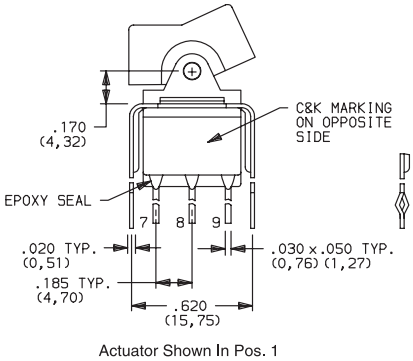
E201J1__BE2
DPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)

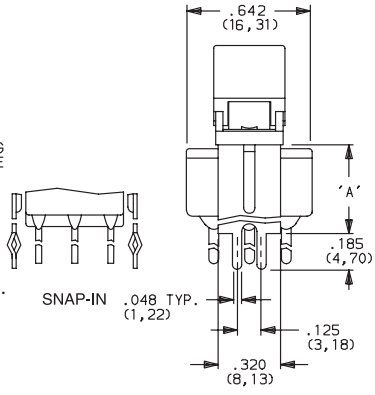
NOTE: Available actuators, see pages G-27 thru G-29.

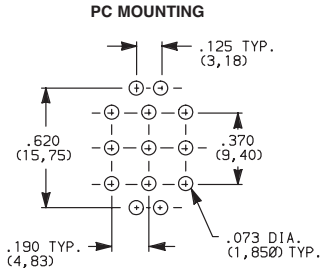
V4 VERTICAL MOUNT, V-BRACKET

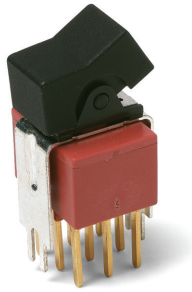
VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1







E301J1__BE2
3PDT

OPTION CODE	DIM 'A'
V41	.630 (16,00)

NOTE: Available actuators, see pages G-27 thru G-29.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E Series
Sealed Miniature Rocker and Lever Handle Switches

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD [1]	GOLD [1]	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
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 AND E2XX MODELS: 0.4 VA MAX @20 V AC OR DC MAX. OR 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]		

* Note: 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 CONTACTS & 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.

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

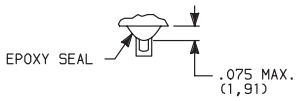
All models with all options when ordered with G, Q, S & R contact material.

B contact material standard with all terminations.

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

SEAL

E EPOXY SEAL



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

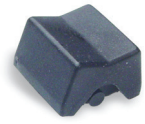
J1, J11 Actuators



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

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

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

AVAILABLE HARDWARE

Fits Z3 Termination female connector



PART NO.
530100000

Available in loose pieces.

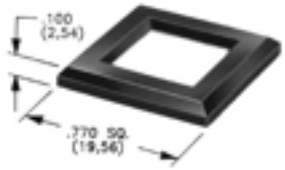
Frame for J11, J21 Actuators



PART NO.
764500746 **BLACK ENAMEL**
764601106 **RETAINING SPRING**

Material: Spring Steel

J50, J60 & J90 Actuators



MATTE
PART NO.
486702000

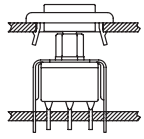
Material: Nylon
Finish: Matte or Gloss

GLOSS
PART NO.
486802000 **BLACK**

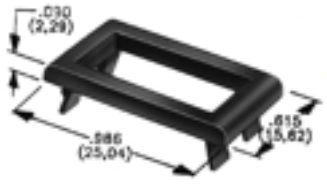
NOTE: Additional nuts, screws and lockwashers available separately, see Technical Data section of this catalog.
Other colors available, consult Customer Service Center.

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 .047-.125 in. Material: Nylon. Finish: Matte.

TYPICAL APPLICATION



J1 & J2 Actuators



.047" (1,19) PANEL THK.	.062" (1,57) PANEL THK.	.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
PART NO.	PART NO.	PART NO.	PART NO.
452902263	452702263	452802263	452602263 **BLACK**
452903000	452703000	452803000	452603000 **RED**

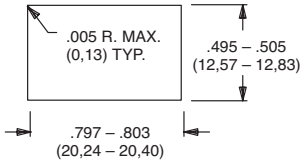
J50, J60 & J90 Actuators



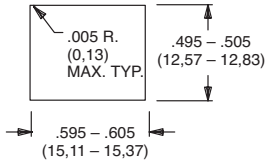
.047" (1,19) PANEL THK.	.062" (1,57) PANEL THK.	.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
PART NO.	PART NO.	PART NO.	PART NO.
432502263	432602263	432702263	432802263 **BLACK**
432503000	432603000	432703000	432803000 **RED**

PANEL MOUNTING

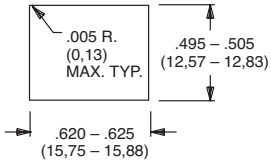
For part numbers
4529xxxxx, 4527xxxxx,
4528xxxxx, 4526xxxxx



For part numbers
4325xxxxx, 4326xxxxx



For part numbers
4327xxxxx, 4328xxxxx



Third Angle Projection

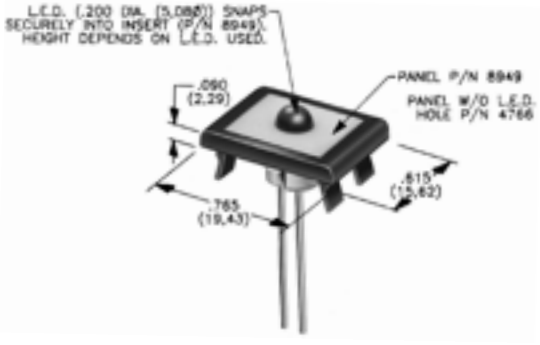
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

AVAILABLE HARDWARE

Panel Inserts

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

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 INSERT WITH HOLE FOR LED	BLANK PANEL INSERT WITHOUT HOLE FOR LED	
PART NO.	PART NO.	
894902000	476602000	BLACK
894903000	476603000	RED

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

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change