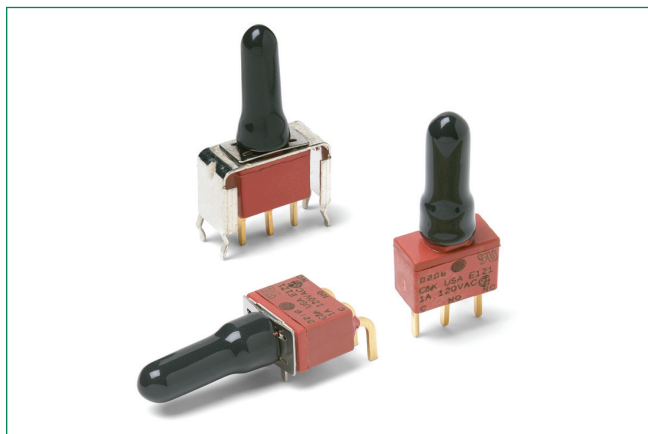


E020 Series

Sealed Snap-acting Momentary Pushbutton Switches



Agency Approvals

Agency	Agency File Number
cULus	E42363

Specifications

Contact Rating	B contact material (EX25): 0.4VA max. @ 20VAC or DC max. G contact material (EX21): 1A @ 120VAC or 28VDC or 0.4VA max @20VAC or DC max. Note: break-before-make contacts. Multipole contacts do not make and break simultaneously.
Electrical Life	60,000 make-and-break cycles at full load.
Contact Resistance	Below 50 mΩ typ. initial @ 2–4 V DC, 100 mA, for both silver and gold plated contacts.
Insulation Resistance	10 ⁹ Ω min.
Dielectric Strength	1000 Vrms min. @ sea level.
Operating Temperature	* –30°C to 75°C
Cap Installation Force	10 lbs. Max. permissible
Solderability	Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

Notes:

- Any models supplied with P, R, B or G contact material are RoHS compliant. Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.
- UL cURus maximum temperature is 65 deg. cel.

Description

The E020 series are sealed snap-acting momentary pushbutton switches, built for use in instrumentation and the networking and telecommunications industries. The E020 features a long-life contact design and is process-sealed with a disposable, splash proof boot. The switches also come with an optional snap-fitting plunger.

Features & Benefits

- Process sealed with disposable splashproof boot
- Long life contact design
- Snap-fitting plunger available
- RoHS compliant models available

Applications

- Instrumentation
- Telecommunications and networking equipment
- Computers and peripherals

Materials

Case & Bushing	Glass filled nylon 6/6, flame retardant (UL 49 V-0).
Plunger	Glass filled nylon or glass filled polyester (PBT) (UL 49 V-0).
Switch Support	Brass or steel, matte-tin
Switch Support Retainer	Stainless steel
N.O. & N.C. Contacts	EX25 models: B contact material: Copper alloy, with gold plate over nickel plate. EX21 models: G contact material: Coin silver, with gold plate over nickel plate.
Common Contacts & All Terminals	Copper alloy, with gold plate over nickel plate.
Terminal Seal	Epoxy
Disposable Boot	Vinyl splashproof boot supplied standard. Remove and discard only after soldering and cleaning processes are complete.

E020 Series

Sealed Snap-acting Momentary Pushbutton Switches



Ordering Number

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

Ex - x - x - x - x - E

Switch Function
E121: SPDT On-Mom. 1 AMP
E221: DPDT On-Mom. 1 AMP
E125: SPDT On-Mom. 0.4VA
E225: DPDT On-Mom. 0.4VA

Plunger
S: 0.282" high
M: 0.331" high, snap-fitting
S1: 0.332" high

Bushing
D1: Unthreaded
D3: 0.180" high, unthreaded

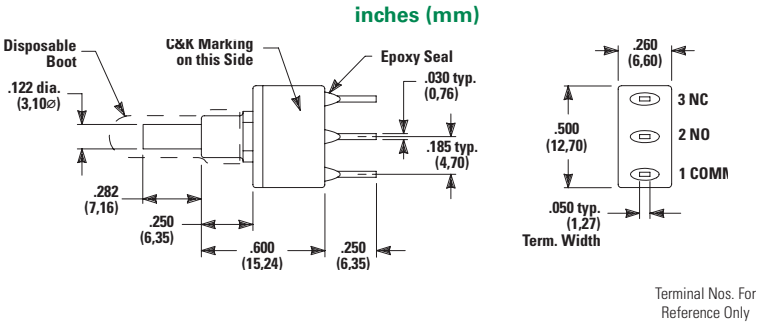
Seal
E: Epoxy and disposable splashproof boot

Contact Material
B: Gold
G: Gold over silver
P: Gold, matte-tin
R: Gold over silver, matte tin

Terminations
A: Right angle, PC Thru-hole
AV2: Vertical right angle, PC Thru-hole
C: PC Thru-hole
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
V6: 0.460" high, V-bracket
V8: 0.953" high, V-bracket
V31: 0.460" high, snap-in V-bracket
V41: 0.630" high, snap-in V-bracket
V61: 0.460" high, snap-in V-bracket

Switch Function
SPDT

No. Poles	Mo. Poles	Switch Function		Connected Terminals		Schematic
		POS. 1 	POS. 2 	POS. 1 	POS. 2 	
		C&K marking on opposite side				
SP	E121	ON	MOM.	1-3	1-2	
	E125					



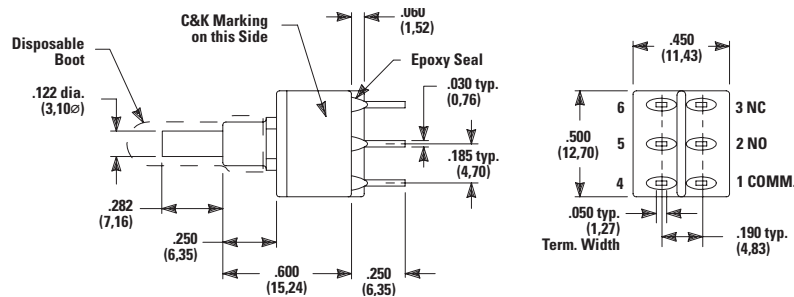
E020 Series

Sealed Snap-acting Momentary Pushbutton Switches



DPDT

No. Poles	Model No.	Switch Function		Connected Terminals		Schematic
		POS. 1 	POS. 2 	POS. 1 	POS. 2 	
		C&K marking on opposite side				
DP	E221	ON	MOM.	1-3, 4-6	1-2,4-5	
	E225					



Part Number Shown: E221SD1CBE

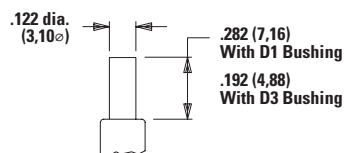
MOM. = Momentary All models us with all options when ordered with G or R contact material.

EX25 models must be ordered with B or P contact material. EX21 models must be ordered with G or R contact material.

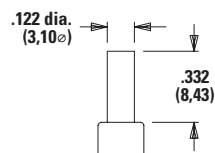
Terminal Nos. For
Reference Only

Plunger

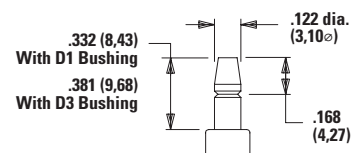
S 0.282" High



S1 0.332" High



M 0.332" High Snap-Fitting

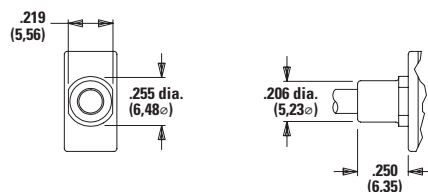


Notes:

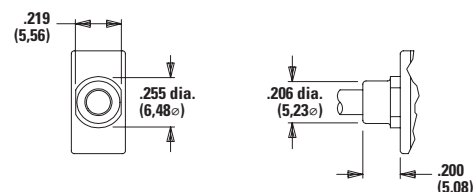
Not Available with D1 bushing. Caps available for all plunger options, see page A-27.

Bushing

D1 Unthreaded



D3 0.180" High Unthreaded



Notes:

Not Available with S1 actuator. Disposable splashproof vinyl over actuator and bushing supplied std., see page A-26.

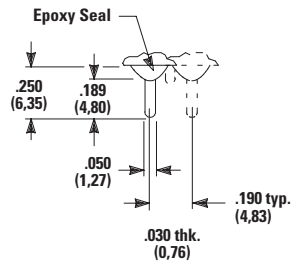
E020 Series

Sealed Snap-acting Momentary Pushbutton Switches

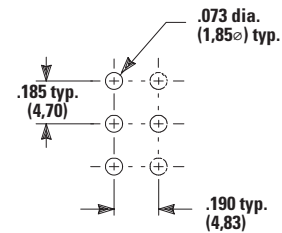


Terminations

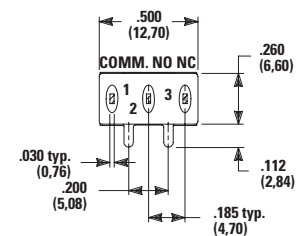
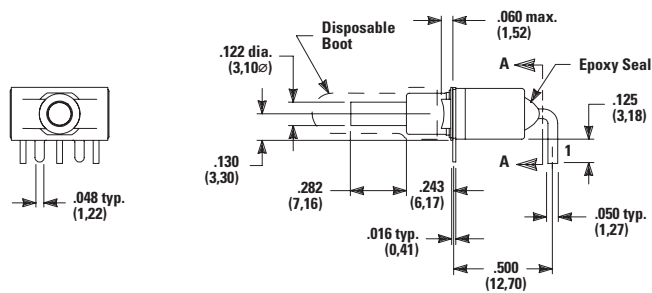
C PCThru-hole SPDT and DPDT



PC Mounting

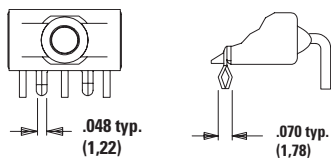


A Right Angle, PCThru-hole E121SD1AGE SPDT



Section A-A

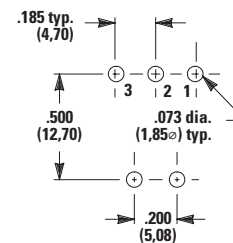
A3 Right Angle, Snap-in, PCThru-hole



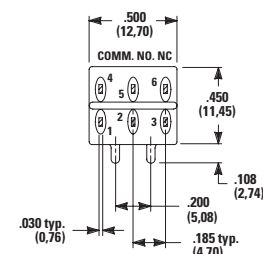
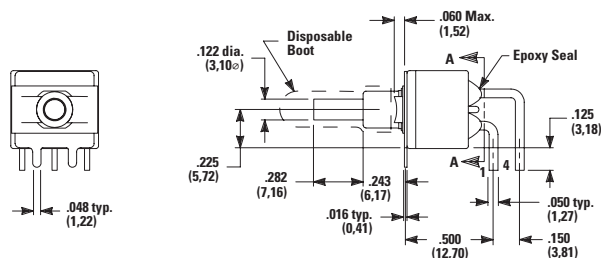
Notes:

Terminal bend radii and lead-in manufacturing option.

PC Mounting



A Right Angle, PCThru-hole E221SD1AGE DPDT



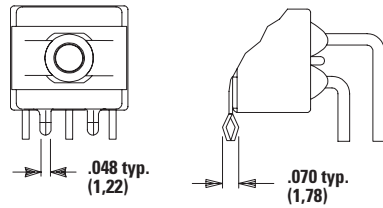
Section A-A

E020 Series

Sealed Snap-acting Momentary Pushbutton Switches

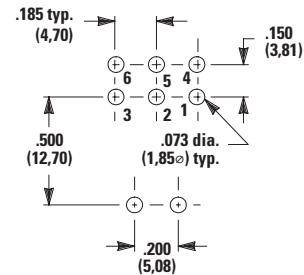


A3 Right Angle, Snap-in, PC Thru-hole

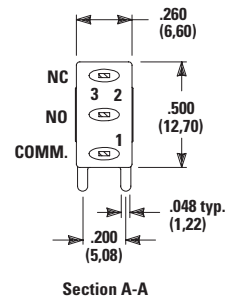
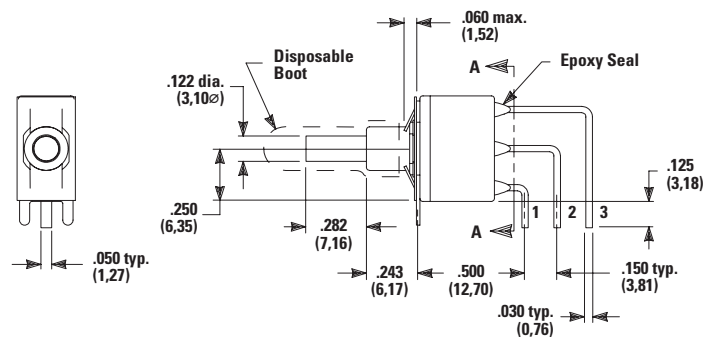


Notes:
Terminal bend radii and lead-in manufacturing option.

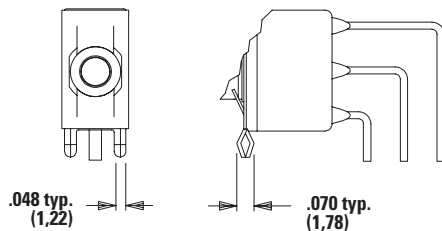
PC Mounting



AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch E121SD1AV2GE SPDT

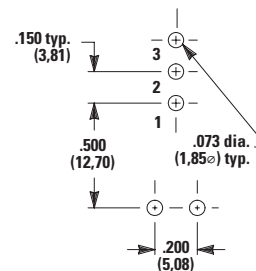


AV3 Vertical Right Angle, Snap-in, PC Thru-hole, 0.150" Pitch

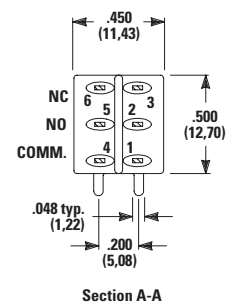
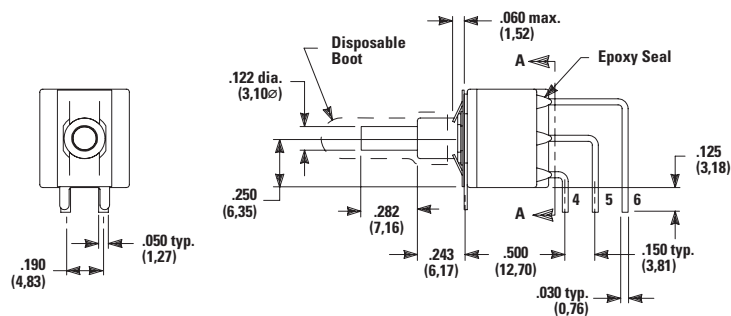


Note: Terminal bend radii and lead-in manufacturing option.

PC Mounting



AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch E221SD1AV2GE DPDT

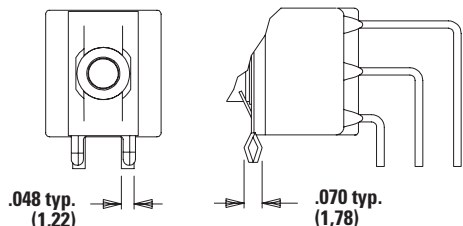


E020 Series

Sealed Snap-acting Momentary Pushbutton Switches

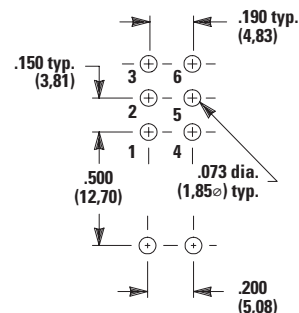


AV3 Vertical Right Angle, Snap-in, PC Thru-hole, 0.150" Pitch

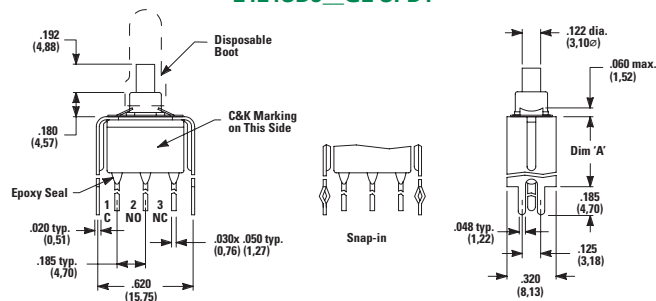


Note: Terminal bend radii and lead-in manufacturing option.

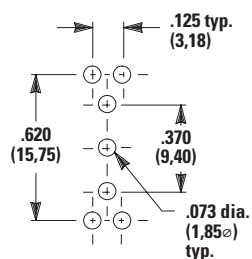
PC Mounting



V3, V4 Vertical Mount, V-Bracket V31, V41 Vertical Mount, V-Bracket, Snap-in E121SD3__GE SPDT



PC Mounting



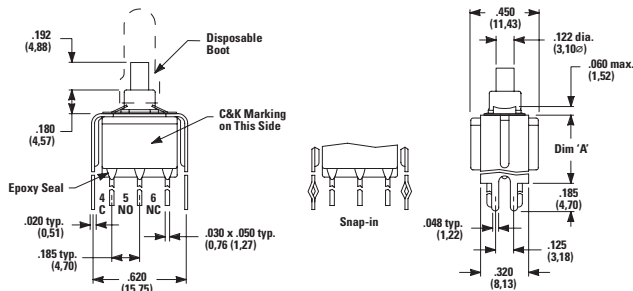
Option Code	DIM 'A'
V3, V31	0.460 (11.68)
V4, V41	0.630 (16.00)

E020 Series

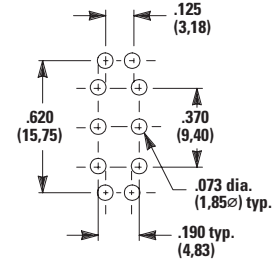
Sealed Snap-acting Momentary Pushbutton Switches



V3, V4 Vertical Mount, V-Bracket V31, V41 Vertical Mount, V-Bracket, Snap-in E221SD3_GE DPDT

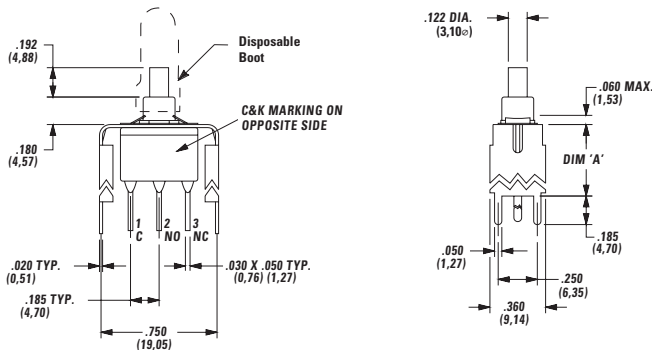


PC Mounting

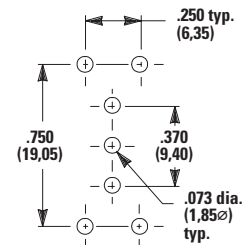


Option Code	DIM 'A'
V3, V31	0.460 (11.68)
V4, V41	0.630 (16.00)

V6, V8 Vertical Mount, V-Bracket V61, V81 Vertical Mount, V-Bracket, Snap-in E121SD3_GE SPDT

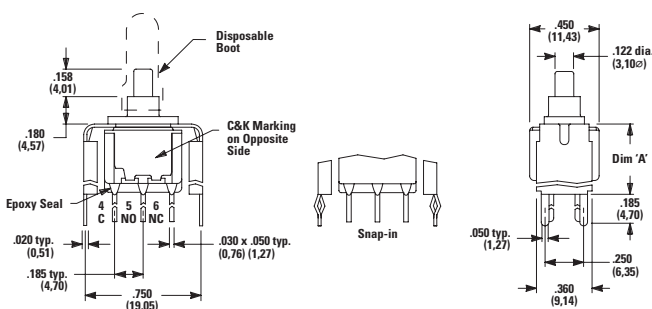


PC Mounting

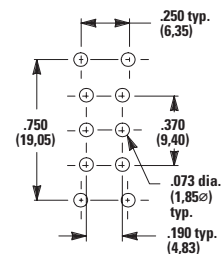


Option Code	DIM 'A'
V6, V61	0.460 (11.68)
V8, V81	0.953 (24.21)

V6, V8 Vertical Mount, V-Bracket V61, V81 Vertical Mount, V-Bracket, Snap-in E221SD3V6GE DPDT



PC Mounting



Option Code	DIM 'A'
V6, V61	0.460 (11.68)
V8, V81	0.953 (24.21)

E020 Series

Sealed Snap-acting Momentary Pushbutton Switches



Contact Material

Option Code	Contact Material	Terminal Plating	Ratings	
B	Gold ¹	Gold ¹	Low Level/Dry Circuit	EX25 Models Only: 0.4 VA Max. @ 20 V AC or DC Max.
P		Matte-Tin ⁶		
G	Gold over Silver ^{2,3}	Gold ³	Low Level/Dry Circuit or Power	EX21 Models Only: 0.4 VA Max @ 20 V AC OR DC Max. or 1 AMP @ 120 V AC or 28 V DC.
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 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, silver plated.

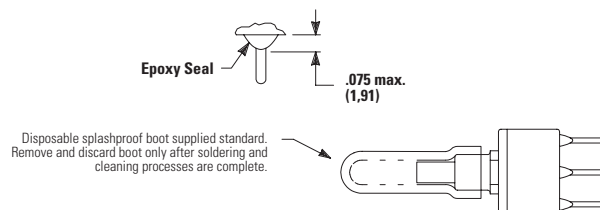
6. Terminals: Copper alloy, with matte tin over nickel plate.

Any models supplied with P, R, Q, B or G contact material are RoHS compliant. All models comply with all options when ordered with R or G contact material. B contact material standard with A, AV, V3 & W terminations.

Q contact material standard with C & Z terminations. P, R contact materials not available with Z terminations.

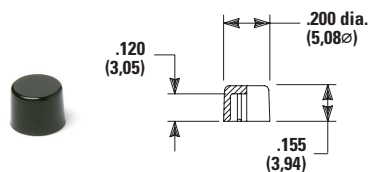
Seal

E Epoxy Seal and Disposable Splashproof Boot



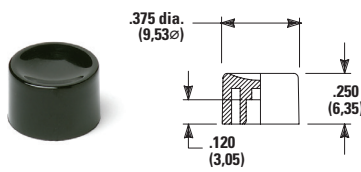
Available Hardware

Cap



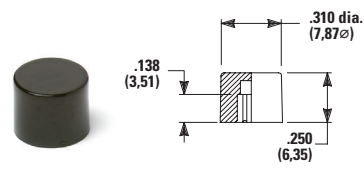
PART NO.
708901000 WHITE
708902000 BLACK
708903000 RED
Material: Nylon
Finish: Gloss

Cap



PART NO.
752701000 WHITE
752702000 BLACK
752703000 RED
Material: Nylon
Finish: Gloss

Cap



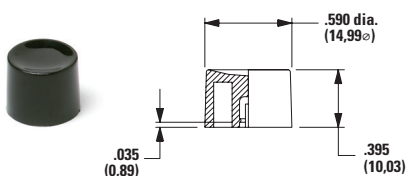
PART NO.
801801000 WHITE
801802000 BLACK
801803000 RED
Material: Nylon
Finish: Gloss

E020 Series

Sealed Snap-acting Momentary Pushbutton Switches



Cap, Snap Fitting Plunger

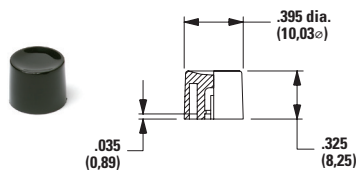


PART NO.

452D01000 WHITE
452D02000 BLACK
452D03000 RED

Material: Nylon
Finish: Gloss

Cap, Snap Fitting Plunger

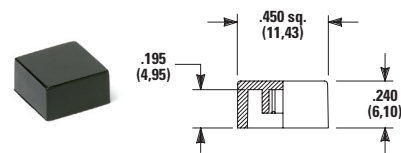


PART NO.

894101000 WHITE
894102000 BLACK
894103000 RED

Material: Nylon
Finish: Gloss

Cap



PART NO.

484601000 WHITE
484602000 BLACK
484603000 RED

Material: Nylon
Finish: Gloss

PART NO.

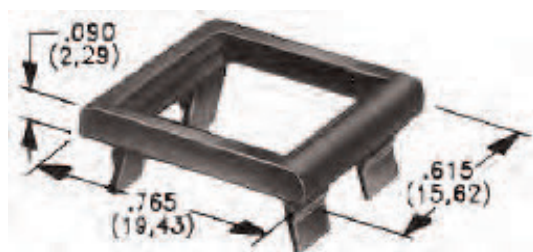
798201000 WHITE
798202263 BLACK
798203000 RED

Material: Nylon
Finish: Gloss

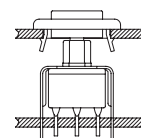
Note: Other cap colors available, consult Customer Service Center.

Frame

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.



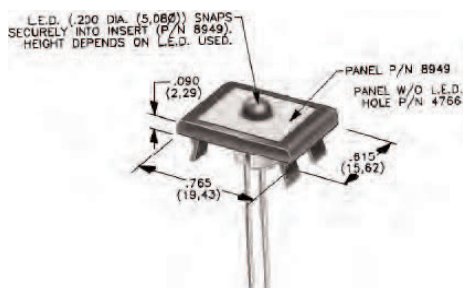
Typical Application



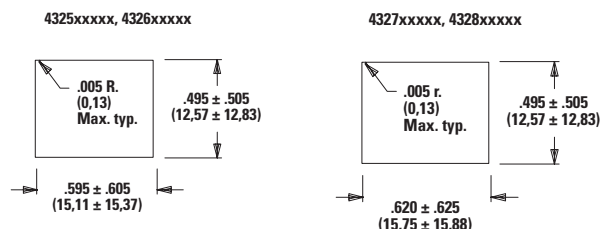
.090" (2,29) PANEL THK.
PART NO. 432702263

.125" (3,18) PANEL THK.
PART NO. 432802263
BLACK

Panel Inserts



Panel Mounting



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
PART NO. 894902000

BLANK PANEL INSERT
WITHOUT HOLE FOR LED
PART NO. 476602000
BLACK

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

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