

Pushbuttons

Product Selection Guide

Pushbutton									
Series	ELUM	EP	TP	E020	8020	E010	8060	8500	KM
Switch Type	Mom./Latching	Tiny	Tiny	Snap-acting Mom.	Snap-acting Mom.	Miniature	Alternate Action	Sub-miniature	Sub-miniature
Poles/Throws	SPDT	SPST, SPDT, DPST	SPST, SPDT, DPST	SPDT, DPDT	SPDT, DPDT, 3PDT, 4PDT	SPDT	SPDT, DPDT	SPST	SPST, SPDT
Max. Current	3.5 VA	1 Amp	1 Amp	1 Amp	1 Amp	4 Amps	6 Amps	3 Amps	1 Amp
Process Sealed		•		•		•			
Illuminated	•				•		•	•	
PCB Mount Options									
Thru-hole	•	•	•	•	•	•	•	•	•
Vertical		•	•	•	•	•	•	•	•
Right Angle	•	•	•	•	•	•	•	•	•
Surface Mount	•	•							
Panel Mount			•		•	•	•	•	•
Page No.	A-3	A-9	A-15	A-21	A-29	A-46	A-52	A-62	A-67

Pushbutton							
Series	8600	8700	GP	PN	PHA	F	NE-18
Switch Type	Micro-miniature	Over Travel	Ultra-miniature	Alternate & Mom. Action	Short Stroke	Alternate & Mom. Action	Mains / Power
Poles/Throws	SPST	SPST	SPST, SPDT	SPDT, DPDT, 4PDT	DPDT, 4PDT, 6PDT	DPDT, 4PDT, 6PDT, 8PDT, 10PDT	DPST, DPDT Varied
Max. Current	500 mA	1 Amp	0.4 V	200 mA	100 mA	500 mA	6 A
Process Sealed			•				
PCB Mount Options							
Thru-hole	•	•	•	•	•	•	•
Vertical	•	•	•				
Right Angle			•	•	•	•	•
Surface Mount			•				
Panel Mount	•	•				•	•
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8020 Series Snap-acting Momentary Pushbutton Switches



A

Pushbutton

Features/Benefits

- **Positive tactile feel**
- **Multi-positions available**
- **Wide variety of termination options**
- **Epoxy terminal seal compatible with bottom wash cleaning**
- **RoHS compliant models available**



Models Available

Typical Applications

- **Instrumentation**
- **Computer peripherals**
- **Telecommunications equipment**



Specifications

CONTACT RATING: B contact material (8X25 Models): 0.4 VA max. @ 20 V AC or DC maximum. G contact material (8X21, U8X1 Models): 1 AMP @ 120 V AC or 28 V DC or 0.4 VA max. @ 20 V AC or DC max. Note: Break-before-make contacts. Multi-pole contacts do not make and break simultaneously. See page A-43 for additional ratings.

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: 10⁹Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: 8X2X MODELS: -30°C to 75°C. U8X1 MODELS: -30°C to 65°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).

NOTE: Any models supplied with B, P, R, or G 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.

Materials

CASE: Glass filled nylon 6/6 or diallyl phthalate (DAP), flame retardant (UL 94V-0).

PLUNGER: Glass filled nylon or glass filled polyester (PBT) (UL 94V-0).

CAP & FRAME: Nylon, black, standard.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

N.O. & N.C. CONTACTS: 8X21, U8X1 MODELS: G contact material: Coin silver, with gold plate over nickel plate. See page A-43 for additional contact materials.

8X25 MODELS: B contact material: Copper alloy, with gold plate over nickel plate. See page A-43 for additional contact materials.

COMMON CONTACT & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

TERMINAL SEAL: Epoxy. Refer to soldering and cleaning Technical Data Chapter.

HARDWARE: Nut & Locking Ring: Brass, nickel plated; Lockwasher: Steel, nickel plated.

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 A-30 thru A-45. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.

Switch Function	Actuator or Plunger	Bushing	Contact Material	Seal	Cap Color	Frame Color	LED Color
8121 SPDT On-Mom. 1 Amp 8125 SPDT On-Mom. 0.4VA 8221 DPDT On-Mom. 1 Amp 8225 DPDT On-Mom. 0.4VA 8321 3PDT On-Mom. 1 Amp 8325 3PDT On-Mom. 0.4VA 8421 4PDT On-Mom. 1 Amp 8425 4PDT On-Mom. 0.4VA	S Plunger NONE Snap-in J80 Snap-in J81 Snap-in w/frame J82 Snap-in w/frame for LED J83 Snap-in w/frame & flush cap J84 Snap-in w/frame for LED, flush cap J85 Snap-in w/frame & LED J95 PC w/V-bracket & LED L Plunger M Snap-fitting plunger	D9 .280" high, keyway H .250" high, flat NONE No bushing choice required D .280" high, keyway D2 .288" high, flat D3 .180" high D8 .288" high, flat H9 .250" high, flat, hi torque Y .350" high, keyway Y3 6.35mm high, keyway, hi torque Y4 .378" high, flat, hi torque Y9 .350" high, keyway	B Gold P Gold, matte-tin G Gold over silver R Gold over silver, matte-tin	E Epoxy I Epoxy potted base	2 Black NONE Models without caps 1 White 3 Red	2 Black NONE Models without frame 1 White 3 Red 5 Yellow 6 Green 9 Gray	3 Red NONE Models without LED 5 Yellow 6 Green

Terminations

A Right angle, PC thru-hole	A4 Right angle, PC thru-hole, reversed terminals	V2 .555" high, V-bracket	V31 .460" high, snap-in V-bracket
AV2 Vertical right angle, PC thru-hole	A6 Right angle, PC thru-hole	V3 .460" high, V-bracket	V61 .460" high, snap-in V-bracket
C PC Thru-hole	AV Vertical right angle, PC thru-hole	V4 .630" high, V-bracket	W .750" long, wire wrap
Z Solder lug	AV1 Vertical right angle, PC thru-hole	V6 .460" high, V-bracket	W1 .964" long, wire wrap
A2 Right angle, PC thru-hole	AV3 Vertical right angle, snap-in, PC thru-hole	V7 .630" high, V-bracket	W3 .425" long, wire wrap
A3 Right angle, snap-in, PC thru-hole	R Right angle with PCB	V8 .953" high, V-bracket	W4 1.062" long, wire wrap
	R2 Right angle with PCB, reversed terminals	V9 1.150" high, V-bracket	Z3 Quick connect



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

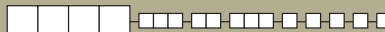


A

Pushbutton

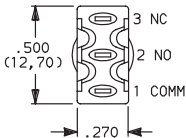
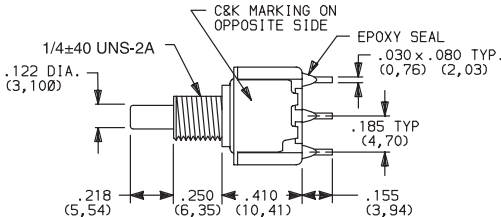
8020 Series Snap-acting Momentary Pushbutton Switches

SWITCH FUNCTION



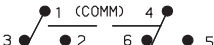
NO. POLES	MODEL NO.	UL/CSA* MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
			POS. 1	POS. 2	POS. 1	POS. 2	
							
			C&K marking on opposite side		C&K marking on opposite side		
SP	8121	U811	ON	MOM.	1-3	1-2	
	8125		ON	MOM.			

SPDT

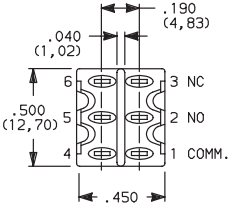
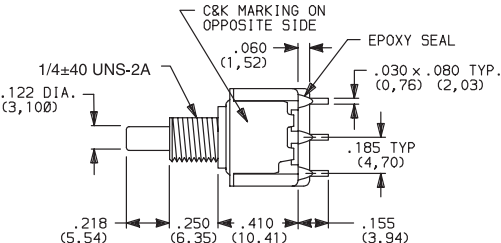


Part number shown: 8121SHZGE

Terminal Nos.
For Reference Only

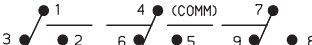
DP	8221	U821	ON	MOM.	1-3,4-6	1-2,4-5	
	8225		ON	MOM.			

DPDT

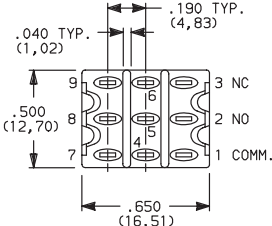
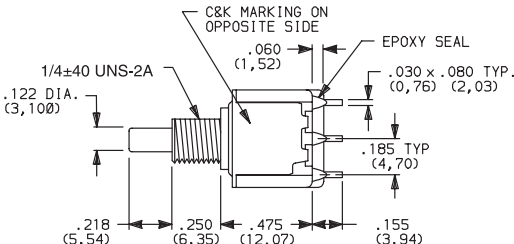


Part number shown: 8221SHZGE

Terminal Nos.
For Reference Only

3P	8321	U831	ON	MOM.	1-3,4-6,7-9	1-2,4-5,7-8	
	8325		ON	MOM.			

3PDT



Part number shown: 8321SHZGE

Terminal Nos.
For Reference Only

MOM. = Momentary

*U811 thru U841 model numbers with all options (except R, R2 terminations) when ordered with G, L or R contact material.

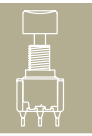
8X25 models must be ordered with B or P contact material.

8X21 and U8X1 models must be ordered with G or R contact material.

C&KThird Angle
Projection

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

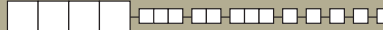
8020 Series Snap-acting Momentary Pushbutton Switches



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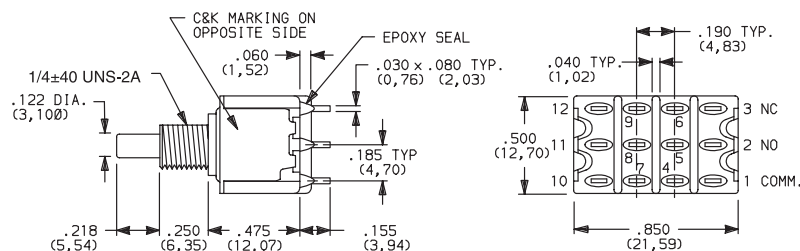
Pushbutton

SWITCH FUNCTION



NO. POLES	MODEL NO.	UL/CSA* MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
			POS. 1	POS. 2	POS. 1	POS. 2	
4P	8421	U841	ON	MOM.	1-3,4-6,7-9,10-12	1-2,4-5,7-8,10-11	
	8425		ON	MOM.			

4PDT



Part number shown: 8421SHZGE

Terminal Nos.
For Reference Only

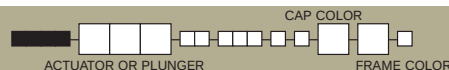
MOM. = Momentary

* U811 thru U841 model numbers with all options (except R, R2 terminations) when ordered with G, L or R contact material.

8X25 models must be ordered with B or P contact material.

8X21 and U8X1 models must be ordered with G or R contact material.

ACTUATOR—SNAP-IN FRONT MOUNT

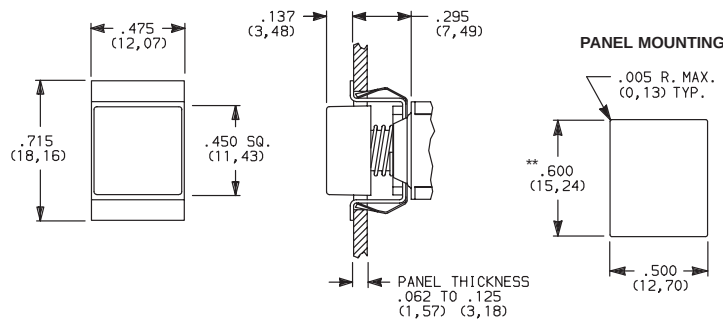


OPTION CODE	CAP AND FRAME COLOR
2	BLACK
NONE	No Frame Color (J80 option)
1	WHITE
3	RED
4	ORANGE
5	YELLOW
6	GREEN
7	BLUE
9	GRAY

Other colors available, consult Customer Service Center. Cap and Frame Finish: matte.

NOTE: Caps and frames available separately, see pages A-44 and A-45.

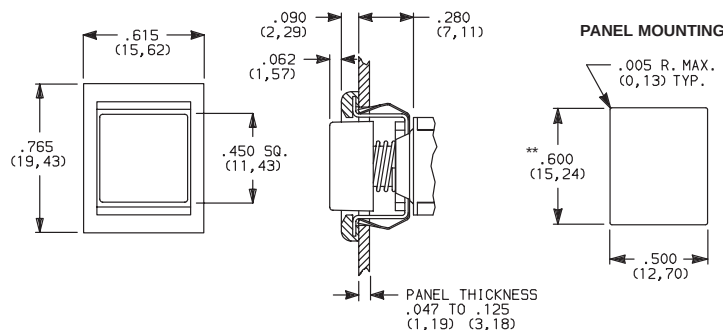
J80 SNAP-IN



NOTE: No frame color choice required.

** Increase this dim. to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thk. panels.

J81 SNAP-IN WITH FRAME



NOTE: Available with C, W-W4, Z or Z3 terminations and SPDT and DPDT models only.

** Increase this dim. to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thk. panels.



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



8020 Series Snap-acting Momentary Pushbutton Switches



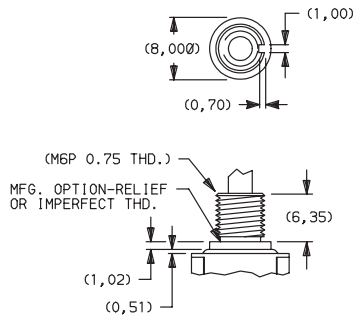
A

Pushbutton

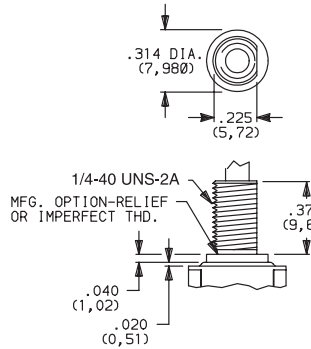
BUSHING



Y3 6.35mm THREADED, KEYWAY

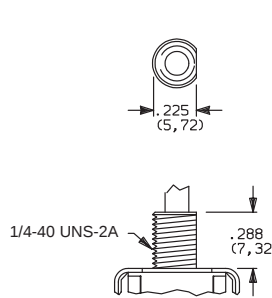


Y4 .378" HIGH THREADED, FLAT

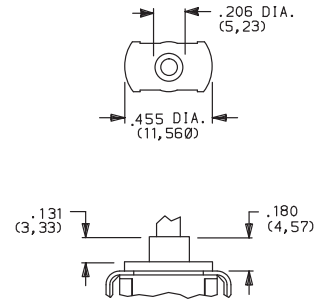


D2 .288" HIGH THREADED, FLAT

D8 .288" HIGH UNTHREADED, FLAT



D3 .180" HIGH UNTHREADED



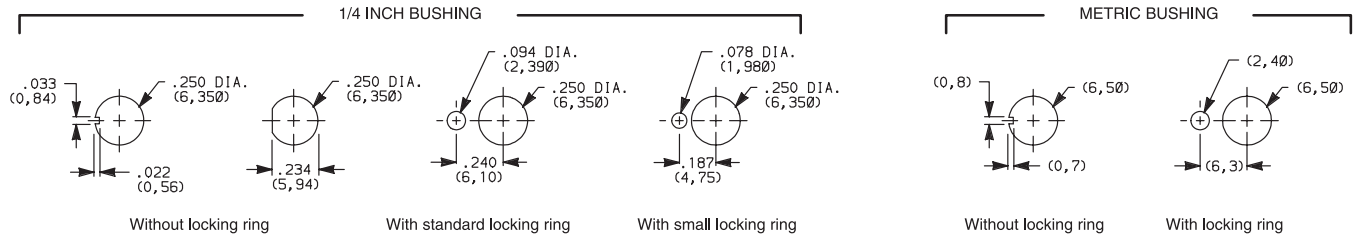
Y3 & Y4 bushings not available on single pole models with A3-A6, R, R2 terminations. Will withstand 12 in./lbs. of torque with no distortion.

D2, D8 bushings not available with C, W-W4, Z, Z3 terminations.

D3 bushing available with A, A2, A3, AV, AV2, AV3 and V2-V61 terminations only.

NOTE: No bushing option choice required when JXX actuator option is selected. When selecting bushing option, plunger selection must also be made, see previous page. Plunger lengths vary with bushing and termination options selected.

PANEL MOUNTING

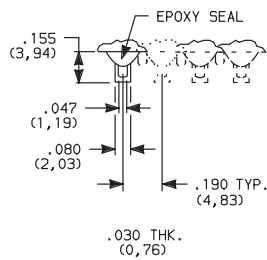


NOTE: Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Optional mounting nut and locking ring styles available, see section "Technical Data and Additional Hardware".

TERMINATIONS



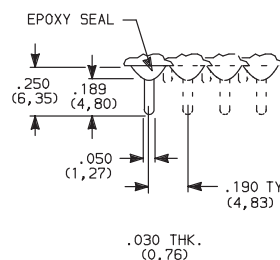
Z SOLDER LUG



Not available with J95 actuator, P or R contact material.

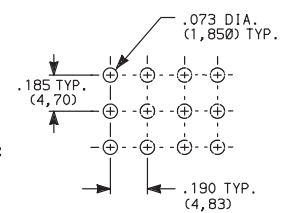
SPDT thru 4PDT

C PC THRU-HOLE



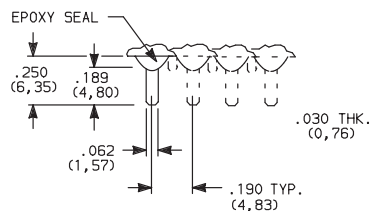
SPDT thru 4PDT

PC MOUNTING



Not available with J95 actuator option.

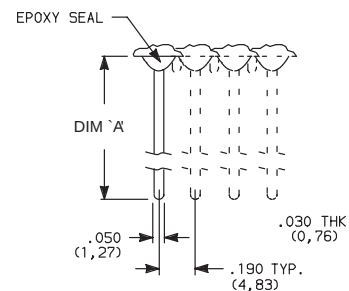
Z3 QUICK CONNECT



SPDT thru 4PDT

Not available with J95 actuator, P or R contact material. Mating quick connector available, order part number 530100000, page A-44.

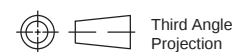
W W1, W3, W4 WIRE WRAP



SPDT thru 4PDT

OPTION CODE	DIM 'A'
W	.750 (19,05)
W1	.964 (24,49)
W3	.425 (10,80)
W4	1.062 (26,97)

Not available with J95 actuator option.



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

C&K

8020 Series Snap-acting Momentary Pushbutton Switches

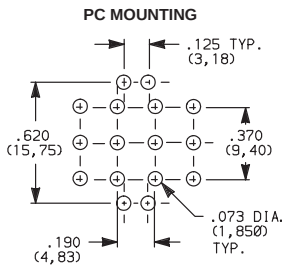
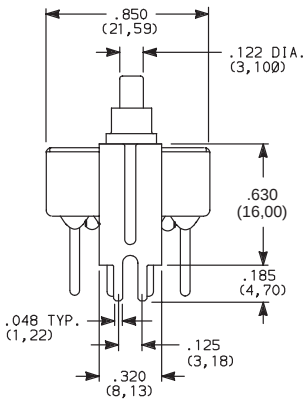
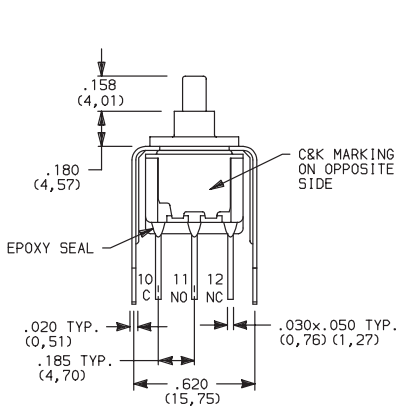


Pushbutton

TERMINATIONS



V4, V9 VERTICAL MOUNT, V-BRACKET



**8421SD3V4GE
4PDT**

OPTION CODE	DIM 'A'
V4	.630 (16,00)
V9	1.150 (29,21)

Not available with JXX actuators and I seal.

CONTACT MATERIAL



OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/DRY CIRCUIT	8x25 MODELS ONLY: 0.4 MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁴		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	8X21, U8X1 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 ⁴		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

¹ ALL CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

² N.O. AND N.C. CONTACTS: Coin silver, with gold plate over nickel plate.

³ COMMON CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

⁴ TERMINALS: Copper alloy, with matte-tin over nickel plate.

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

U811-U841 models with all options (except R, R2 terminations) when ordered with mandatory G, R or L contact material.

B or P contact material must be ordered with 8X25 models.

G or R contact material must be ordered with 8X21, U8X1 models.

P or R contact material not available with Z, Z3 terminations.

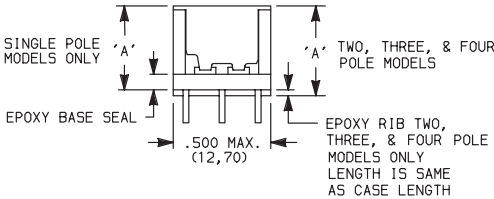
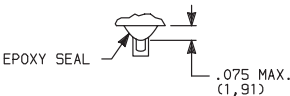
K, L and M options represent Non RoHS tin lead product and are not recommended for new designs. For additional information please contact Customer Service.

SEAL



E EPOXY SEAL

I EPOXY POTTED BASE



NO. POLES	DIM 'A'
SP	.410 (10,41)
DP	.440 (11,18)
3P	.505 (12,83)
4P	.505 (12,83)

NOTE: Available with C, W-W4, Z, Z3 terminations only.



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Specifications and dimensions subject to change