

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	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 Seal E Epoxy I Epoxy potted base Cap Color 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 LED Color 3 Red NONE Models without LED 5 Yellow 6 Green	V2 .555" high, V-bracket V3 .460" high, V-bracket V4 .630" high, V-bracket V6 .460" high, V-bracket V7 .630" high, V-bracket V8 .953" high, V-bracket V9 1.150" high, V-bracket V31 .460" high, snap-in V-bracket V61 .460" high, snap-in V-bracket W .750" long, wire wrap W1 .964" long, wire wrap W3 .425" long, wire wrap W4 1.062" long, wire wrap Z3 Quick connect



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



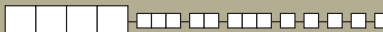
A

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	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							
DP	8221	U821	ON	MOM.	1-3,4-6	1-2,4-5	
	8225		ON	MOM.			
DPDT							
Part number shown: 8221SHZGE							
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							

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

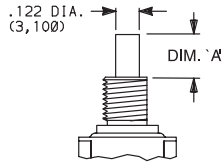
A

PLUNGER

ACTUATOR OR PLUNGER

Pushbutton

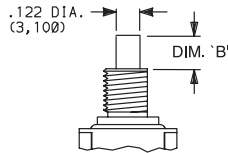
S PLUNGER



NONE NO PLUNGER CHOICE REQUIRED (JXX ACTUATORS)

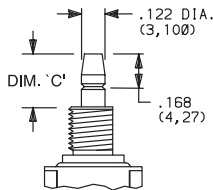
AVAILABLE BUSHINGS	DIM. 'A' FOR C, W-W4, Z & Z3 TERMINATIONS	DIM. 'A' FOR A, A2, A3, A4, A6, AV-A3, R & R2 TERMINATIONS	DIM. 'A' FOR V3-V61 TERMINATIONS
D, D9	.244 (6,20)	.228 (5,79)	.224 (5,69)
H, H9	.218 (5,54)	.202 (5,13)	.198 (5,03)
Y, Y9	.203 (5,16)	.187 (4,75)	.183 (4,65)
Y3	(5,54)	(5,13)	(5,03)
Y4	.185 (4,70)	.169 (4,29)	.165 (4,19)
D2, D8	N/A	.232 (5,89)	.228 (5,79)
D3	N/A	.162 (4,11)	.158 (4,01)

L PLUNGER



AVAILABLE BUSHINGS	DIM. 'B' FOR C, W-W4, Z & Z3 TERMINATIONS	DIM. 'B' FOR A, A2, A3, A4, A6, AV-A3, R & R2 TERMINATIONS	DIM. 'B' FOR V3-V61 TERMINATIONS
Y, Y9	.178 (4,52)	.162 (4,11)	.158 (4,01)
Y4	.090 (2,29)	.074 (1,88)	.070 (1,78)

M SNAP-FITTING PLUNGER



AVAILABLE BUSHINGS	DIM. 'C' FOR C, W-W4, Z & Z3 TERMINATIONS	DIM. 'C' FOR A, A2, A3, A4, A6, AV-A3, R & R2 TERMINATIONS	DIM. 'C' FOR V3-V61 TERMINATIONS
D, D9	.297 (7,54)	.281 (7,14)	.277 (7,04)
H, H9	.267 (6,78)	.251 (6,38)	.247 (6,27)
Y, Y9	.259 (6,58)	.243 (6,17)	.239 (6,07)
Y3	(6,78)	(6,37)	(6,27)
Y4	.259 (6,58)	.243 (6,17)	.239 (6,07)
D2, D8	N/A	.273 (6,93)	.269 (6,83)
D3	N/A	.361 (9,17)	.357 (9,07)

N/A = NOT AVAILABLE

NOTE: When selecting plunger option, bushing selection must also be made, see next page. No plunger option is required when any JXX actuator option is selected. Additional plunger lengths are available on SPDT and DPDT models, consult Customer Service Center. Not all plunger lengths sufficient for use with caps, see page A-44.

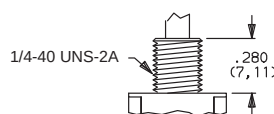
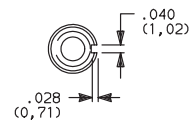
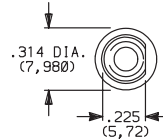
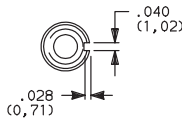
BUSHING

NONE NO BUSHING CHOICE REQUIRED (JXX ACTUATORS)

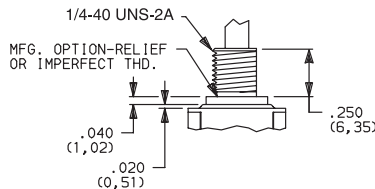
D .280" HIGH THREADED, KEYWAY D9 .280" HIGH UNTHREADED, KEYWAY

H .250" HIGH THREADED, FLAT H9 .250" HIGH UNTHREADED, FLAT

Y .350" HIGH THREADED, KEYWAY Y9 .350" HIGH UNTHREADED, KEYWAY

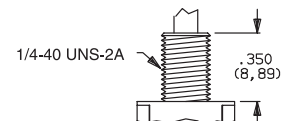


D9 bushing standard with A-A6, R, R2 AV-AV3 terminations.



H bushing standard with C, W-W4, Z or Z3 terminations. H, H9 bushings not available on single pole models with A3-A6, R, R2 terminations.

Will withstand 12 in./lbs. of torque with no distortion.



Third Angle
Projection

Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

C&K

8020 Series Snap-acting Momentary Pushbutton Switches



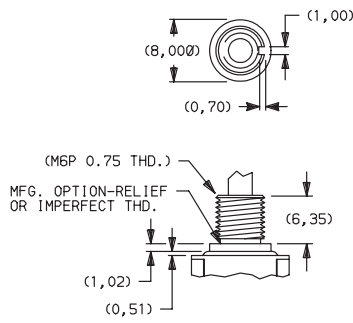
A

Pushbutton

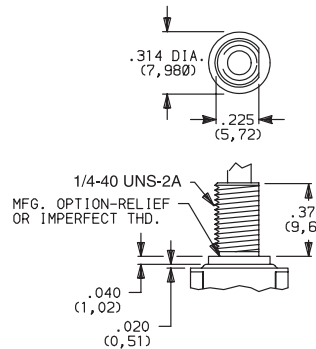
BUSHING



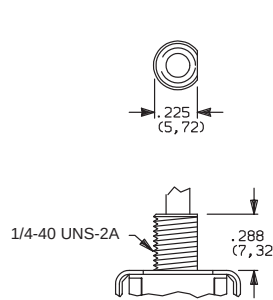
Y3 6.35mm THREADED, KEYWAY



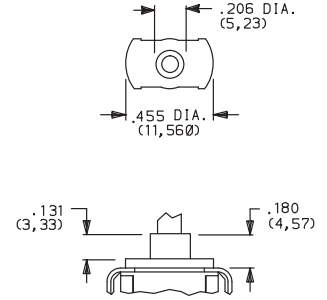
Y4 .378" HIGH THREADED, FLAT



D2 .288" HIGH THREADED, FLAT
D8 .288" HIGH UNTHREADED, FLAT



D3 .180" HIGH UNTHREADED



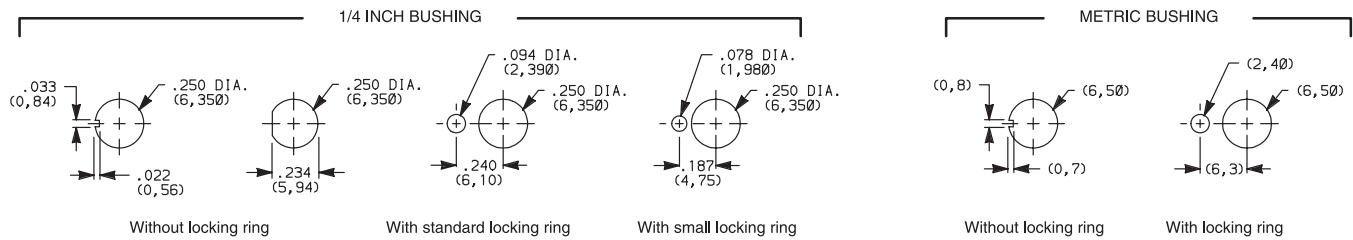
Y3 & Y4 bushings not available on single pole models with A3-A6, R, R2 terminations. Will withstand 12 in./lbs. of torque with no distortion.

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

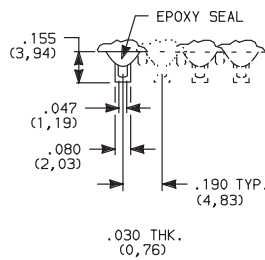


NOTE: Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Optional mounting nut and locking ring styles available, see section "Technical Data and Additional Hardware".

TERMINATIONS



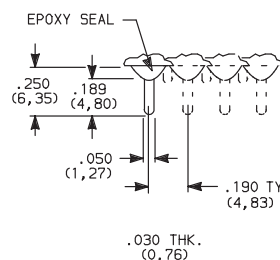
Z SOLDER LUG



SPDT thru 4PDT

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

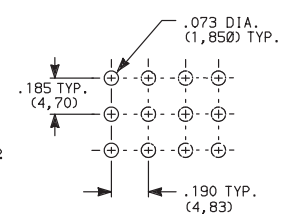
C PC THRU-HOLE



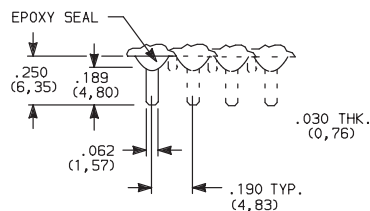
SPDT thru 4PDT

Not available with J95 actuator option.

PC MOUNTING



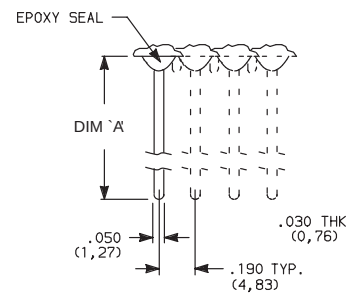
Z3 QUICK CONNECT



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)

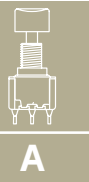
Not available with J95 actuator option.



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

C&K

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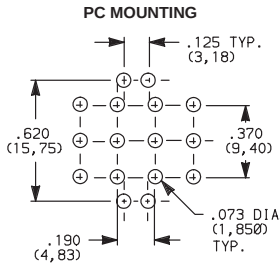
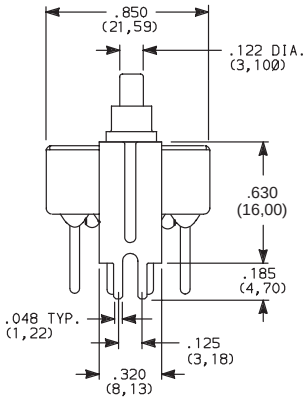
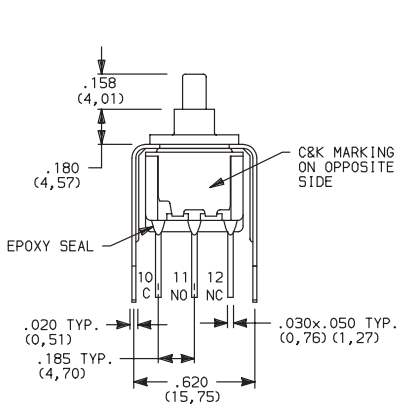


Pushbutton

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.

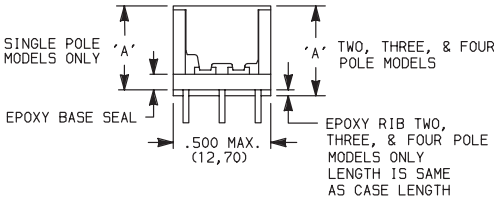
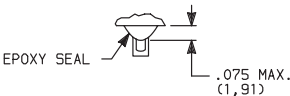
K, L and M options represent Non RoHS tin lead product and are not recommended for new designs. For additional information please contact Customer Service.

SEAL



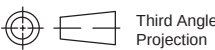
E EPOXY SEAL

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