

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

Typical Applications

- Instrumentation
- Computer peripherals
- Telecommunications equipment



Models Available

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 plunger 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

- 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

Note: UL/CSA models available, see page A-30 and A-31.

Actuator or Plunger

- 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

Bushing

- 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

Contact Material

- 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
- 4** Orange
- 5** Yellow
- 6** Green
- 7** Blue
- 9** Gray

Frame Color

- 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

Terminations

- A** Right angle, PC thru-hole
- AV2** Vertical right angle, PC thru-hole
- C** PC Thru-hole
- Z** Solder lug
- A2** Right angle, PC thru-hole
- A3** Right angle, snap-in, PC thru-hole
- A4** Right angle, PC thru-hole, reversed terminals
- A6** Right angle, PC thru-hole
- AV** Vertical right angle, PC thru-hole
- AV1** Vertical right angle, PC thru-hole
- AV3** Vertical right angle, snap-in, PC thru-hole
- R** Right angle with PCB
- R2** Right angle with PCB, reversed terminals
- 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



8020 Series Snap-acting Momentary Pushbutton Switches

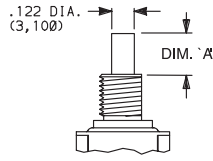
A

Pushbutton

PLUNGER

ACTUATOR OR PLUNGER

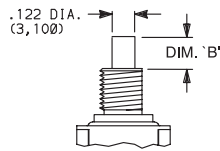
S PLUNGER



NONE NO PLUNGER CHOICE REQUIRED (JXX ACTUATORS)

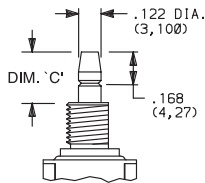
AVAILABLE BUSHINGS	DIM. 'A' FOR C, W-W4, Z & Z3 TERMINATIONS	DIM. 'A' FOR A, A2, A3, A4, A6, AV-A3, R & R2 TERMINATIONS	DIM. 'A' FOR V3-V61 TERMINATIONS
D, D9	.244 (6,20)	.228 (5,79)	.224 (5,69)
H, H9	.218 (5,54)	.202 (5,13)	.198 (5,03)
Y, Y9	.203 (5,16)	.187 (4,75)	.183 (4,65)
Y3	(5,54)	(5,13)	(5,03)
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

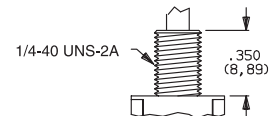
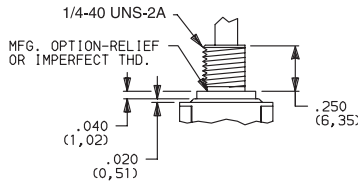
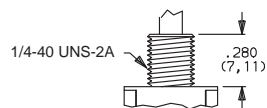
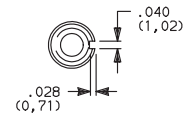
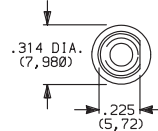
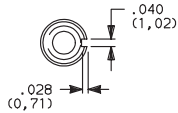
H .250" HIGH THREADED, FLAT

Y .350" HIGH THREADED, KEYWAY

D9 .280" HIGH UNTHREADED, KEYWAY

H9 .250" HIGH UNTHREADED, FLAT

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.



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





8020 Series Snap-acting Momentary Pushbutton Switches

TERMINATIONS



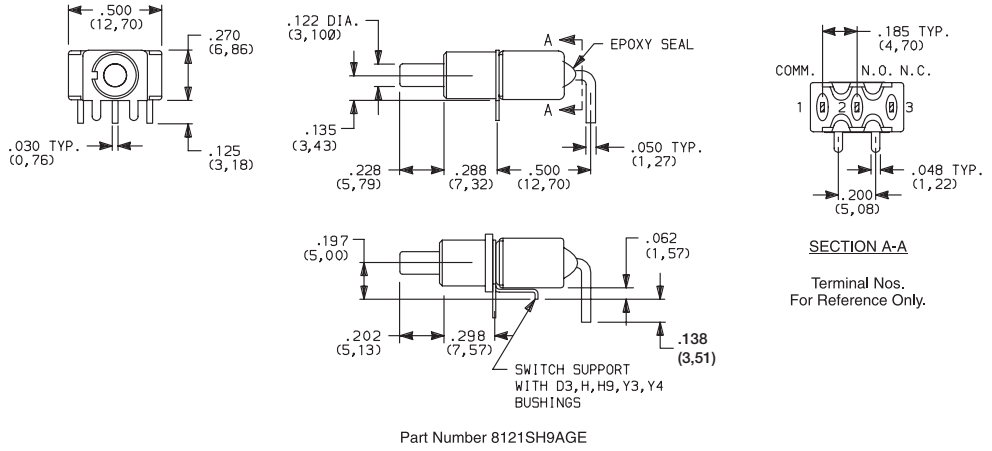
Pushbutton

A

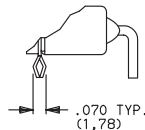
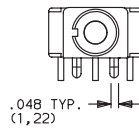
A RIGHT ANGLE, PC THRU-HOLE



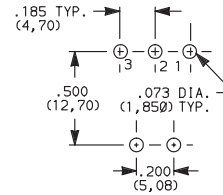
8121SD9AGE
SPDT



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



PC MOUNTING

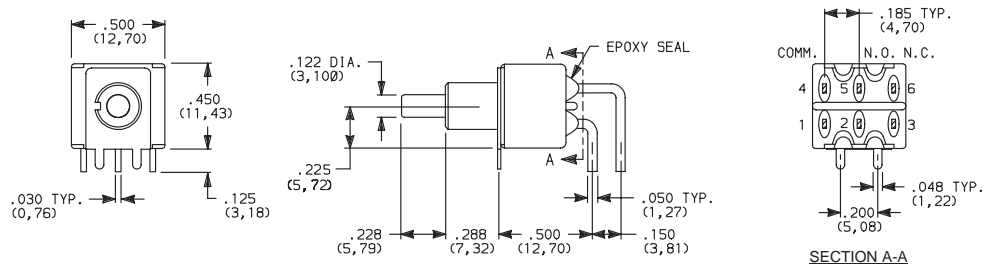


Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

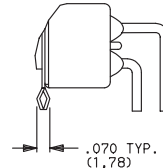
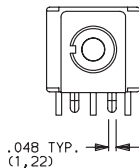
A RIGHT ANGLE, PC THRU-HOLE



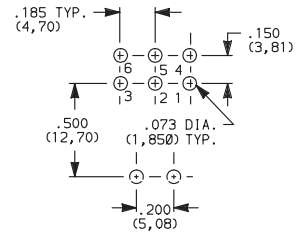
8221SD9AGE
DPDT



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



PC MOUNTING



Not available with JXX actuators and I seal option.
Terminal bend radii and lead-in manufacturing option.



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



8020 Series Snap-acting Momentary Pushbutton Switches



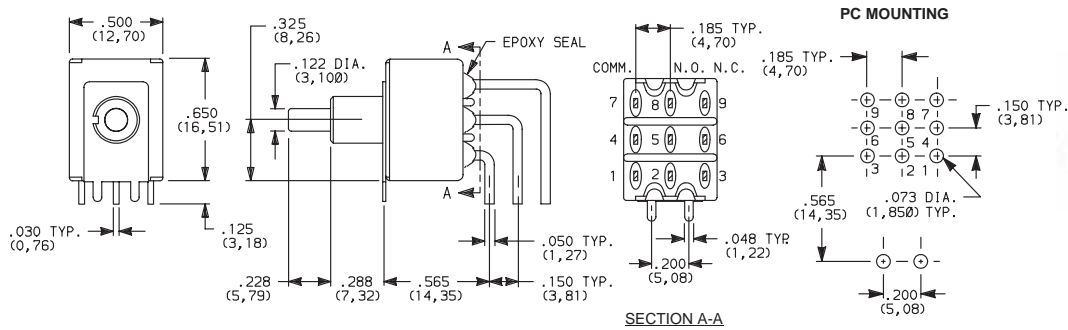
A

Pushbutton

TERMINATIONS



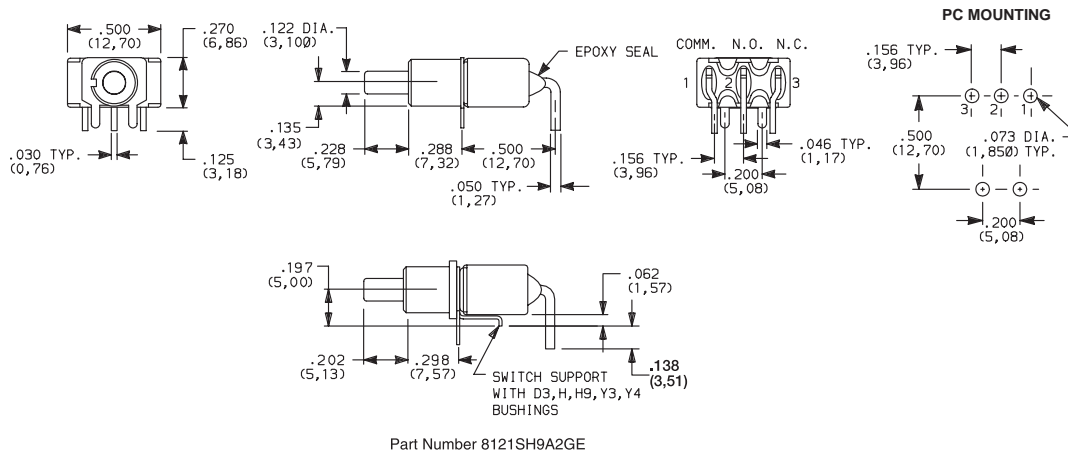
A RIGHT ANGLE, PC THRU-HOLE



8321SD9AGE
3PDT

Not available with JXX actuators and I seal option.
Terminal bend radii and lead-in manufacturing option.

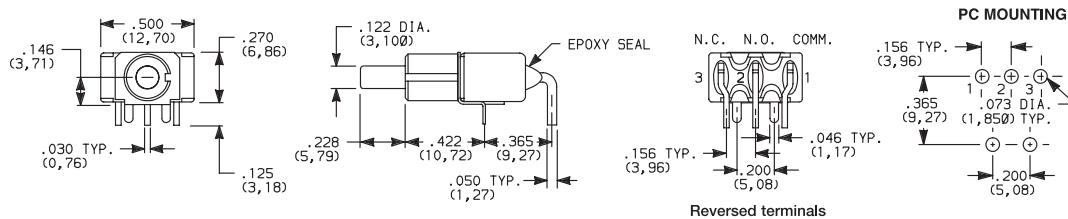
A2 RIGHT ANGLE, PC THRU-HOLE



8121SD9A2GE
SPDT

Not available with JXX actuators, I seal option.
Terminal bend radii and lead-in manufacturing option.

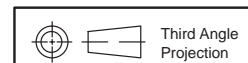
A4 RIGHT ANGLE, PC THRU-HOLE, REVERSED TERMINALS



8121SD9A4GE
SPDT

Not available with JXX actuators, D3, H, H9, Y3, Y4 bushings and I seal.
Terminal bend radii and lead-in manufacturing option.

The A4 and R2 termination options are functionally identical and fit the same PC mounting pattern. The switches, however, are shifted relative to the mounting holes. The PC pattern must clear the switch support legs. Unlike the R2, the A4 option is available with UL/CSA.



Third Angle
Projection

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



8020 Series Snap-acting Momentary Pushbutton Switches

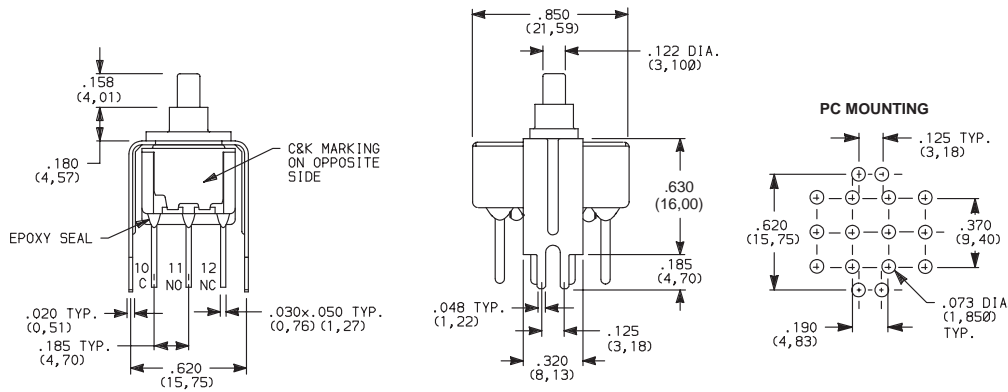


A

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.

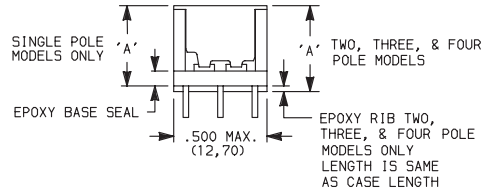
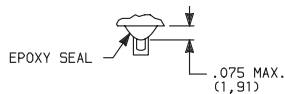
P or R contact material not available with Z, Z3 terminations.

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.



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

