

pushbutton

Pushbutton Product Selection Guide

Pushbutton									
Series	ELUM	EP	ТР	E020	8020	E010	8060	8500	КМ
Switch Type	PCB Illuminated	Sub- miniature	Sub- miniature	Miniature	Miniature	Miniature	Miniature	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									
Thru-hole	•	•	•	•	•	•	٠	•	•
Surface Mount	•	•							
Panel Mount									
Wire Wrap						•	•		
Solder Lug			•		•	•	٠	•	
Quick Connect							٠		•
Page No.	A-4	A-9	A-15	A-21	A-29	A-46	A-52	A-62	A-67

Pushbutton	म्ब्राह्म संस्थित संस		and the second				- With me
Series	8600	8700	GP	PN	PHB	F	NE-18
Switch Type	Micro/ultra- miniature	Sub- miniature	Micro/ultra- miniature	Sub- miniature	Miniature	Miniature	Miniature
Poles/Throws	SPST	SPST	SPST, SPDT	SPDT, DPDT, 4PDT	DPDT, 4PDT	DPDT, 4PDT, 6PDT, 8PDT, 10PDT	DPST, DPDT Varied
Max. Current	500 mA	1 Amp	0.4 VA	200 mA	100 mA	500 mA	6 A
Process Sealed			•				
PCB Mount	1						
Thru-hole	•	•	•	•	•	•	•
Surface Mount			•				
Panel Mount							
Wire Wrap							
Solder Lug	•	•					
Quick Connect							
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Pushbutton		٢					AROF Martin	A Pushbutton
Series	FP	AP	АРВ	NP	PNP	АТР	РВА	outt
Switch Type	Micro/ultra- miniature	Sealed/ Industrial	Sealed/ Industrial	Sealed/ Industrial	Sealed/ Industrial	Panel Illuminated	PCB Illuminated	On
Poles/Throws	SPST, SPDT, DPST, DPDT	SPST	SPST	SPDT	SPST, SPDT	SPDT, DPDT	DPDT, 4PDT	
Max. Current	0.4 VA	400mA	400mA	5 Amp	10mA / 3A / 5A	3A / 5A	0.3 / 1A	
Process Sealed	•	•	•		•			
PCB Mount	•			•				
Thru-hole	•	•	•	•	•		•	
Surface Mount								
Panel Mount								
Wire Leads		•	•	•	•	•		
Solder Lug		•	•	•	•	•		
Quick Connect								
Page No.	A-106	A-109	A-115	A-119	A-126	A-131	A-149	

Pushbutton	-	La la	Ŷ	
Series	PS	PVA	KLS	PLP
Switch Type	Miniature	Miniature	PCB Illuminated	Panel Illuminated
Poles/Throws	SPST, DPDT	DPST, DPDT	SPST, DPDT	Pilot light, SPST, DPDT
Max. Current	0.1 / 1A 0.3 / 2A	100 mA	0.5A / 25Vdc 0.1A / 28Vdc	3A / 250Vac 1A / 30Vdc
Process Sealed			•	
PCB Mount				
Thru-hole	•	•	•	
Surface Mount				
Panel Mount				
Wire Leads	•			•
Solder Lug				•
Quick Connect				
Page No.	A-151	A-161	A-164	A-168



Features/Benefits

- SPDT (N.O. & N.C.)
- Low height above PCB
- Reliable self-cleaning contact
- Surface-mount or thru-hole PCB
- Standard or custom actuator
- Central LED illumination
- Latching or Momentary
- Long travel. Smooth feel
- RoHS compliant and compatible

Materials

Typical Applications

- Telecom network equipment
- Automotive electronics
- **Consumer electronics**
- Computer, server, modem, data storage
- Professional instrumentation, medical

Patent Numbers 6.974.924 B2 US EP1583118B1 Europe

LEAD FREE COMPATIBLE OPTION





Operating Environment

FIXED CONTACTS: Stainless steel, silver plated with gold flash OPERATING TEMPERATURE: -40°C TO 80°C. TERMINALS: Stainless steel, silver plated MOVABLE CONTACTS: Copper alloy, silver plated with

gold flash BASE: Glass filled LCP (UL94V-0) ACTUATOR: Glass filled nylon 4/6 (UL94V-0) COVER: Stainless steel

Electrical

MAXIMUM POWER: 3.5 VA MIN./MAX. VOLTAGE: 20 mV - 50 VDC MIN./MAX. CURRENT: 0.01 mA - 250 mA DIELECTRIC STRENGTH: ≥ 250 Vrms CONTACT RESISTANCE: ≤ 50 mΩ INSULATION RESISTANCE: ≥ 10° Ω BOUNCE TIME: ≤1 ms LED SPECIFICATIONS: See page A-5

Mechanical

OPERATING FORCE: 2.5 N at Full Travel SWITCHING TRAVEL: .067" (1.7 mm) LATCH TRAVEL: .131" (3.6 mm) FULL TRAVEL: .200" (5.1 mm)

STORAGE TEMPERATURE: -40°C TO 80°C. RELATIVE HUMIDITY: 90% R.H. @ 80°C. OPERATING LIFE: 30,000 Cycles. VIBRATION: Per EIA 186-E Method MECHANICAL SHOCK: Per EIA 186-E Method 12. OVERLOAD: Withstands 40 N for 1 minute without damage

Process Environment

SOLDERABILITY: According to Mil STD 202F Method 208D or EIA RS-186E Method 9.

LEAD FREE PROCESS COMPATIBLE: 260°C peak, 10 seconds Max. above 250° C.

WASHING PROCESS: No clean process compatible (SMT) Bottom wash compatible (Thru-hole)

SHEAR TEST (SWITCH/PCB): > 40 N

Packaging

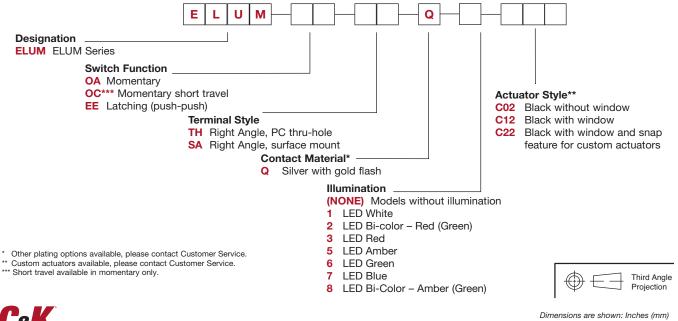
"SA" Terminal Style SMT: Tape and reel per EIA 481-2 (450/reel) "TH" Terminal Style PC: Tray (60/tray)

NOTE: Any models supplied with Q. contact material are RoHS compliant.

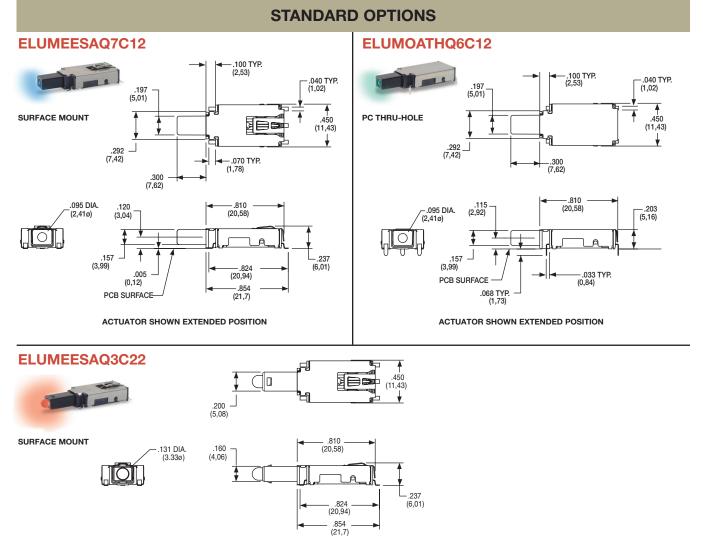
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, please contact Customer Service.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.



Specifications and dimensions subject to change



ACTUATOR SHOWN EXTENDED POSITION



ELUM SERIES, Illuminated Latching Pushbutton

SWITCH FUNCTION

		POSITION -	1	POSITION	12	SCHEMATIC
OPTION CODE	NO. OF POLES	SWITCH FUNCTION	CONNECTED TERMINALS	SWITCH FUNCTION	CONNECTED TERMINALS	3 C 4 NC NO 2
OA / OC	SP Momentary	ON	3 – 4	ON (Mom.)	3 – 2	SPDT
EE	SP Latching (Push-Push)	ON	3 – 4	ON	3 – 2	- → • + Anode - Cathode

For SPST N.O. function, only terminals 3 & 2 are used.

For SPST N.C. function, only terminals 3 & 4 are used.

Circuit: Make before break

NOTE: For bi-color LED's the polarity must be reversed to alternate the color



+ Anode - Cathode



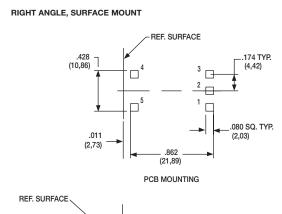
LED pins 1 & 5 are independent of

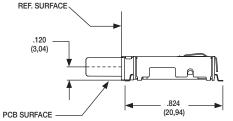
Dimensions are shown: Inches (mm) Specifications and dimensions subject to change

Third Angle Projection

TERMINAL STYLE

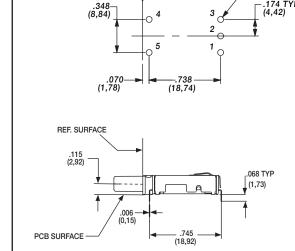
ΤН





Terminal 5 = LED Anode

CONTACT MATERIAL



4

RIGHT ANGLE, PC THRU-HOLE

REF. SURFACE

3

.062 DIA. TYP.

.174 TYP. (4,42)

(1,57ø)

Terminal 5 = LED Anode

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS
Q	SILVER WITH GOLD FLASH	SILVER	250 mA

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

FIXED CONTACTS AND TERMINALS: Stainless steel, silver plated with gold flash MOVABLE CONTACTS: Copper alloy, silver plated with gold flash

NOTE: Any models supplied with Q, contact material are RoHS compliant.

ILLUMINATION

OPTION CODE	ILLUMINATION TYPE	TYPICAL I MIN	NTENSITY* MAX	PEAK WAVELENGTH	Vf Forward Voltage
		(m	cd)	(nm)	
0	Model without illumination	N/A		N/A	
1	LED Super White	4,000	5,000	N/A	3.5
2	LED Bi-Color – Red (Green)	10	20	635/565	2.0
3	LED Red	4	8	700	2.0
5	LED Amber	35	50	610	2.0
6	LED Green	35	50	565	2.0
7	LED Super Blue	800	1,500	470	3.8
8	LED Bi-Color – Amber (Green)	10	10	585/565	2.0

*LED FORWARD CURRENT: 20 mA

LED FORWARD VOLTAGE: see chart above

LED REVERSE VOLTAGE: 5.0 V MAX

* For information on specific and custom LED, please contact Customer Service.





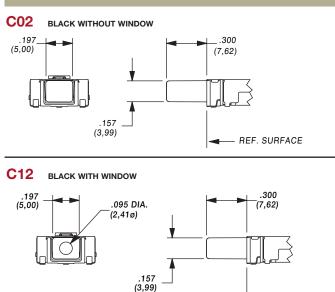
Dimensions are shown: Inches (mm) Specifications and dimensions subject to change

SA

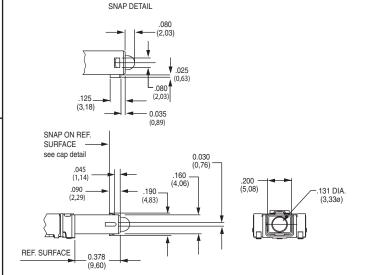
A-6

ACTUATOR STYLE*

-REF. SURFACE

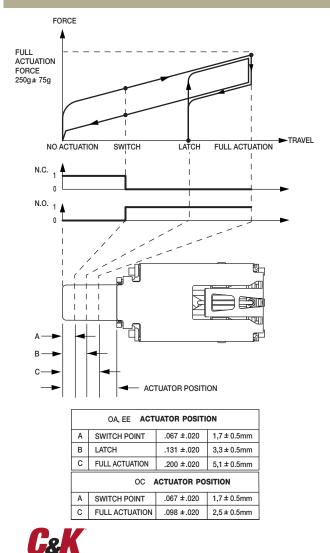


C22 BLACK WITH WINDOW AND SNAP FEATURE TO ACCEPT CUSTOM CAP

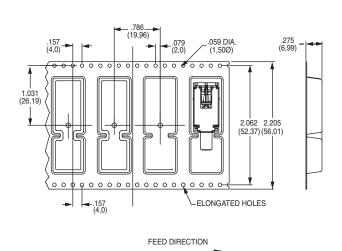


* Custom actuators available, please contact Customer Service.

FORCE TRAVEL DIAGRAM



TAPE & REEL





AVAILABLE HARDWARE

Cap

PART NO.



Cap



PART NO.

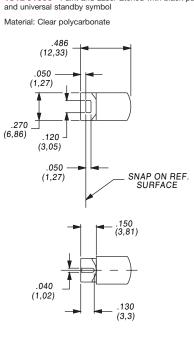
Cap

Pushbutton >

957C00000 High temperature black cap with universal standby symbol

956C02000 High temperature black cap with no symbol

Material: 4/6 Nylon SMT compatible



181D01000 Paint and Laser Etched with black paint

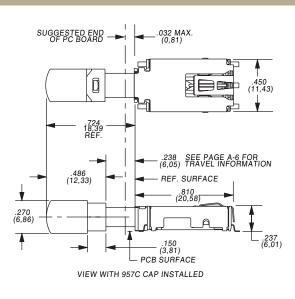


PART NO.

181D00000 Paint and laser etched with white paint underlay and black paint with universal standby symbol. Material: Clear polycarbonate

NOTE: Caps are for use with the C22 actuator style. Other colors and symbols available, consult Customer Service Center.

CAP INSTALLATION





www.ckswitches.com

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Third Angle

Projection

Features/Benefits

- Sealed against solder & cleaning processes
- Thru-hole and surface mount models
- Snap-fitting actuator accepts standard caps
- Tape & reel packaging available
- RoHS compliant models available



Models Available

Specifications

- CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. See page A-13 for additional ratings.
- ELECTRICAL LIFE: EP11, EP21 models: 60,000 make-and-break cycles at full load. EP12 models: 30,000 cycles.
- CONTACT RESISTANCE: Below 20 mΩ9 typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: $10^9 \Omega 9$ min.

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).
- DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

PACKAGING: Surface mount switches standard in anti-static tape and reel packaging per EIA 481-3, see page A-14 for drawings and reel information. Tape and cover strip are conductive for use near statically sensitive components, consult Customer Service Center.

Typical Applications

- Telecommunications and networking equipment
- Computers and peripherals
- Instrumentation and controls





Materials

CASE & BUSHING: High temperature material, glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0) on EP11 / EP12 models; glass filled nylon 6/6 on EP21.

PLUNGER: Thermoplastic polyester or glass filled nylon (UL 94V-0), with internal o-ring seal. SA surface mount: High temperature material, glass filled LCP (UL 94V-0).

SWITCH SUPPORT: Brass, matte-tin plated.

CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. See page A-13 for additional contact materials.

TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q, B, P, S, 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.

CAUTION: PC mounting layouts and pads as shown are designed to be compatible with the latest equipment and reflow techniques. Care should be taken in the design and location of PC lands to suit individual needs. Orientation relative to reflow direction may significantly impact solder joint integrity.

Build-A-Switch

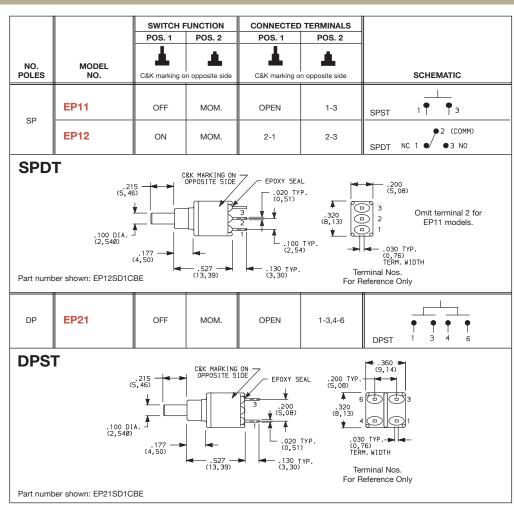
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-10 thru A-14. For additional options not shown in catalog, consult Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.

Switch Function — EP11 SPST Off-Mom. EP12 SPDT On-Mom. EP21 DPST Off-Mom.	Plunger S .215" high S1 .110" high S2 .465" high FP Flush R Snap-fitting, .215 high (not available with EP12 version) Bushing	Seal _ E E E E E E E E E E B Gold P Gold, matte-tin Q Silver S Silver, matte-tin G Gold over silver R Gold over silver, matte tin
		Dimensions are shown: Inches (mm)



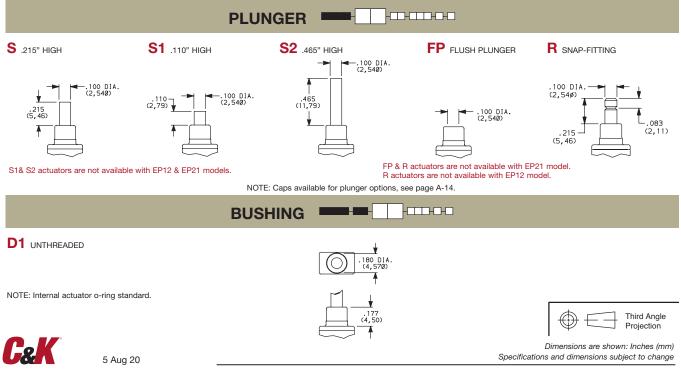
Specifications and dimensions subject to change

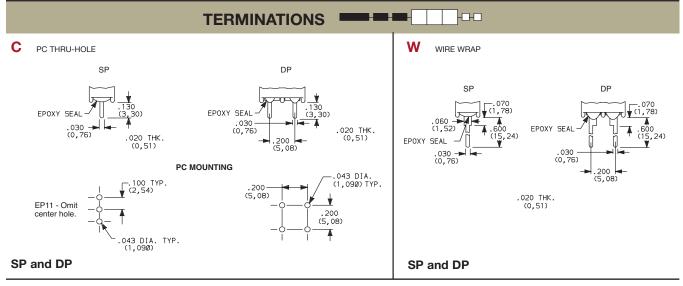
SWITCH FUNCTION



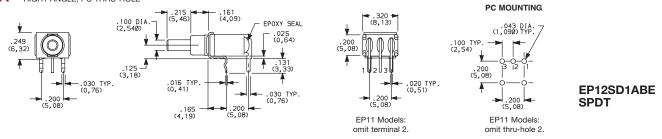
MOM. = Momentary

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

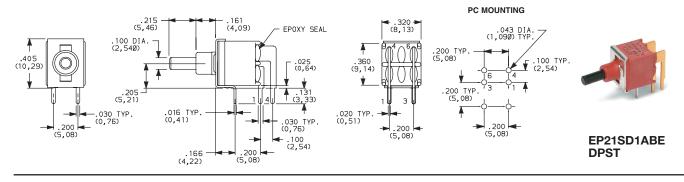




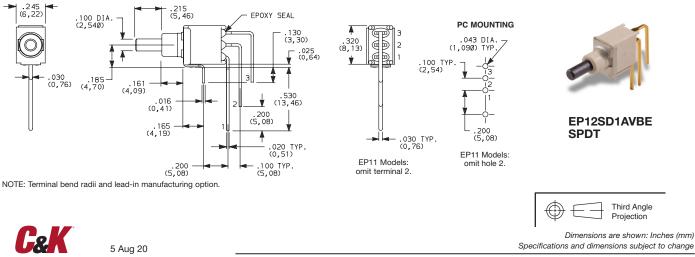
A RIGHT ANGLE, PC THRU-HOLE

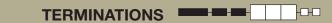


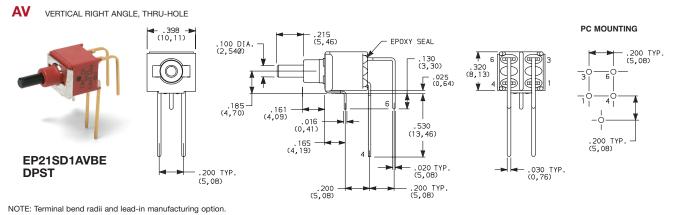
A RIGHT ANGLE, PC THRU-HOLE

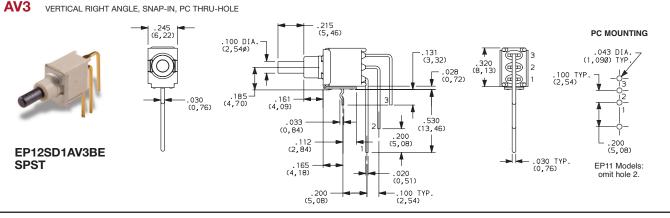


AV VERTICAL RIGHT ANGLE, PC THRU-HOLE

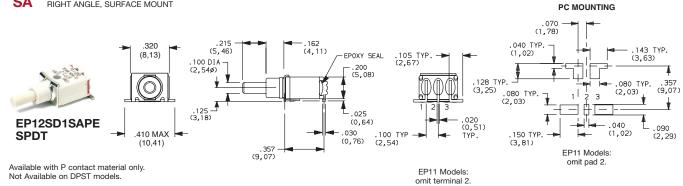




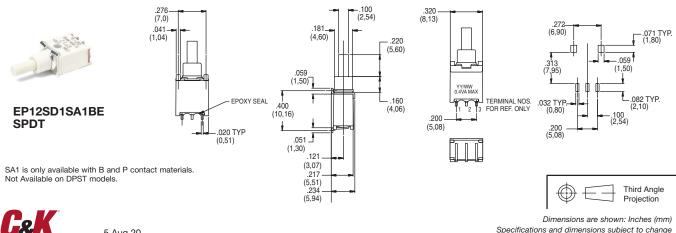






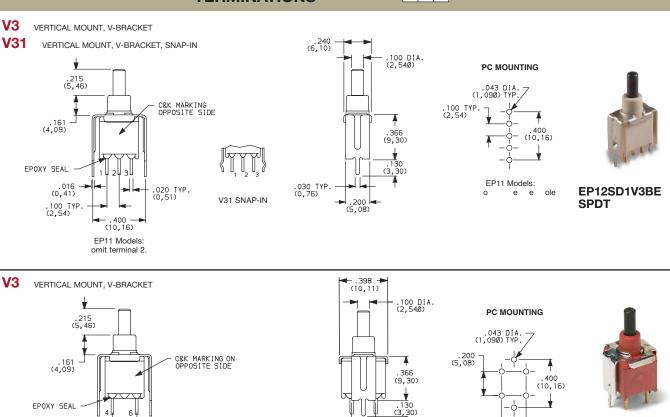






PC MOUNTING

-0-0 **TERMINATIONS**



EP21SD1V3BE DPST

CONTACT MATERIAL

.030 TYP. (0,76)

.200

(5,08)

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	DATINGO			
В	00101	GOLD 1		0.4 VA MAX. @ 20 V AC OR DC MAX.		
Р	GOLD 1	MATTE-TIN 6	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.		
Q	SILVEB 4,5	SILVER 5	2011/52			
S		MATTE-TIN 6	POWER	1 AMP @ 120 V AC OR 28 V DC.		
G	GOLD OVER SILVER 2,3	GOLD ³	LOW LEVEL/DRY	0.4 VA MAX @ 20 V AC OR DC MAX. OR		
R	GOLD OVEN SILVEN	MATTE-TIN ⁶	CIRCUIT OR POWER	1 AMP @ 120 V AC OR 28 V DC.		

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

.020 TYP. (0,51)

.400 — (10,16)

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.

.016

.200 TYF (5,08)

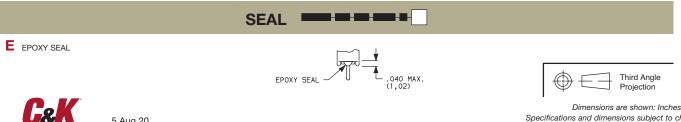
⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

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

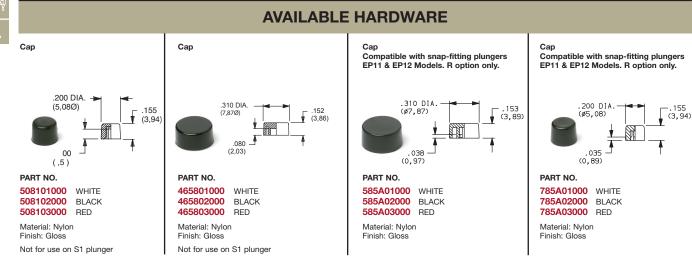
NOTE: Any models supplied with Q, B P, S ,R or G contact material are RoHS compliant.

.200

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



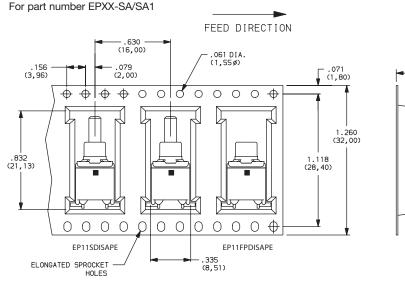




NOTE: Other colors available, consult Customer Service Center.



-.274 (6,96)



REEL INFORMATION			
OUTSIDE DIAMETER	13.00 (330,0)		
PILOT HOLE	.512 (13,0)		
QUANTITY PER REEL	600		



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

GeK

Features/Benefits

- Subminiature size—capable of switching 1 AMP
- Vertical & right angle terminations
- PC & panel mount models
- Snap-in front panel mounting available
- Epoxy terminal seal-compatible with bottom wash cleaning
- RoHS compliant models available



Models Available

Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: 1 AMP @ 120 V AC or 28 V DC. See page A-19 for additional ratings.

- ELECTRICAL LIFE: TP11, TP21 MODELS: 60,000 make-and-break cycles at full load. TP12 MODELS: 30,000 cycles.
- CONTACT RESISTANCE: Below 20 mΩ15 typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.
- INSULATION RESISTANCE: $10^{9}\Omega$ 15min.
- 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).

NOTE: Any models supplied with Q, 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.

Typical Applications

- Telecommunications and networking equipment
- Computers and peripherals
- Instrumentation and controls



Materials

CASE: Glass filled nylon 4/6 or 6/6, flame retardant, heat stabilized or diallyl phthalate (DAP), (UL 94V-0).

PLUNGER: Thermoplastic polyester (UL 94V-0).

CAP & FRAME: Nylon, black standard.

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass, matte-tin plated.

- END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page A-19 for additional contact materials.
- CENTER CONTACT & ALL TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page A-19 for additional contact materials.
- TERMINAL SEAL: Epoxy. Refer to soldering and cleaning in Technical Data Chapter
- HARDWARE: Nut & Locking Ring: Brass nickel plated. Lockwasher: Steel, nickel plated.

Build-A-Switch

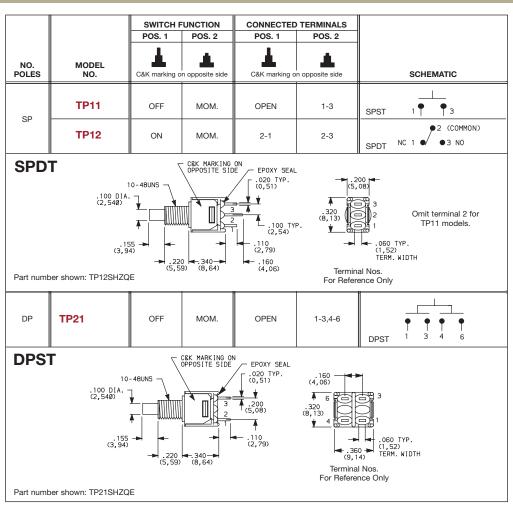
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-16 thru A-20. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.

Switch Function TP11 SPST Off-Mom. TP12 SPDT On-Mom. TP21 DPST Off-Mom. SH .155" high plunger, threaded, .220" high bushing, flat SH8 .155" high plunger, unthreaded, .220" high bushing, round SH9 .155" high plunger, unthreaded, .220" high bushing, flat J81 Snap-in with frame LT .215" high plunger, threaded, .310" high bushing, flat LT9 .215" high plunger, unthreaded, .310" high bushing, flat	Terminations A Right angle, PC thru-hole C PC Thru-hole Z Solder lug AV Vertical right angle, PC thru-hole V3 Vertical mount, v-bracket W Wire wrap Contact Material B Gold P Gold, matte-tin	Seal E Epoxy Cap Color 2 Black NONE Models with no cap 1 White Frame Color 2 Black
MS9 .130" high plunger, .020" high bushing, round	Q SilverG Gold over silverR Gold over silver, matte-tin	NONE Models with no frame



Pushbutton >





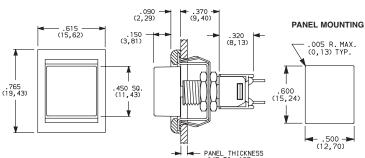
MOM. = Momentary

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

ACTUATOR-SNAP-IN FRONT MOUNT -----IE COLOB

J81 SNAP-IN WITH FRAME







OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
OPTION	

CAP COLOF

.005 R. MAX. (0,13) TYP.

.500 .12.70)

OPTION CODE	FRAME COLOR		
2	BLACK		
NONE	No Frame Color (J80 option)		

Cap and Frame Finish: matte. Other colors available, consult Customer Service Center. NOTE: Available with Z, C, or W terminations.

> Third Angle Projection

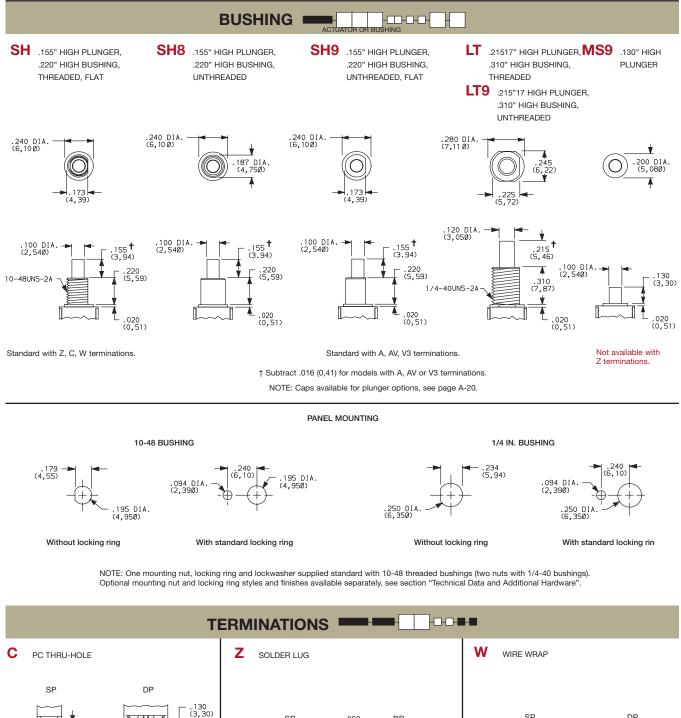
Dimensions are shown: Inches (mm) Specifications and dimensions subject to change

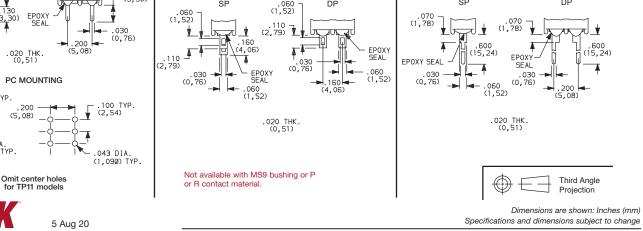


NOTE: Caps & frames available separately, see page A-20.



A Pushbutton





DP

SF

.030

.100 TYP. (2,54)

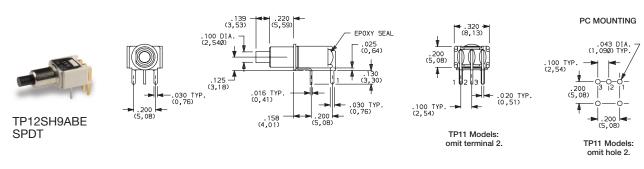
.043 DIA. (1,090) TYP

SP

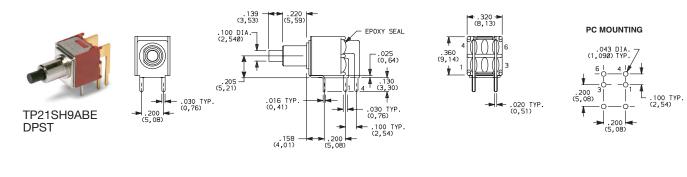
www.ckswitches.com

DP

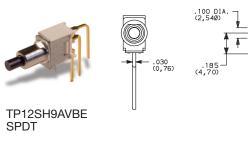
A RIGHT ANGLE, PC THRU-HOLE

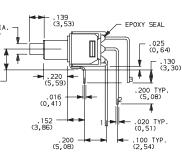


A RIGHT ANGLE, PC THRU-HOLE

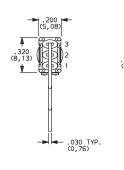


AV VERTICAL RIGHT ANGLE, PC THRU-HOLE

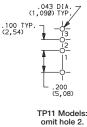




TP11 Models: omit terminal 2.

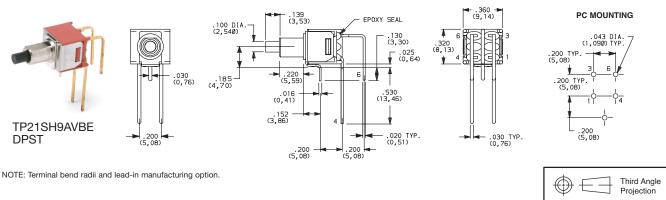






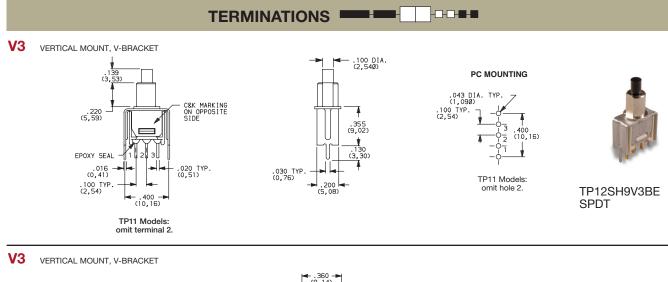
NOTE: Terminal bend radii and lead-in manufacturing option.

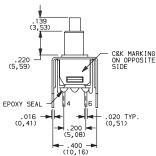
VERTICAL RIGHT ANGLE, PC THRU-HOLE

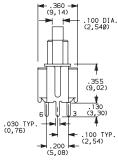


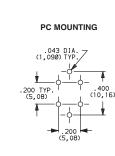


AV











TP21SH9V3BE DPST

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS		
В	GOLD ¹	GOLD ¹		0.4 VA MAX. @ 20 V AC OR DC MAX.	
Р	GOLD .	MATTE-TIN ⁶	LOW LEVEL/DRY CIRCUIT		
Q	SILVER 4,5	SILVER 5	POWER	1 AMP @ 120 V AC OR 28 V DC.	
G	GOLD OVER SILVER 2,3	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX @ 20 V AC OR DC MAX. OR	
R		MATTE-TIN 6		1 AMP @ 120 V AC OR 28 V DC.	

* 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, silver plated.
- ⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate.

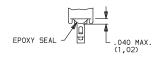
NOTE: Any models supplied with P, R, Q, B or G contact material are RoHS compliant.

All models **N** with all options when ordered with R, G, or Q contact material. B contact material standard with A, AV, V3 & W terminations. Q contact material standard with C & Z terminations

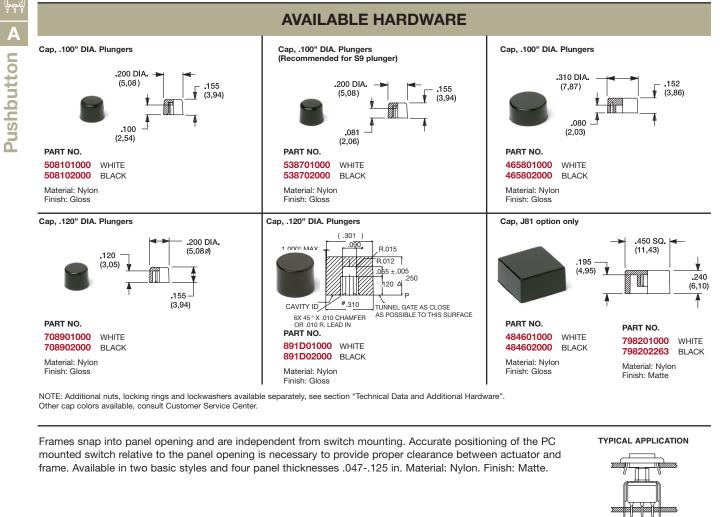
P. R contact materials not available with Z terminations



E EPOXY SEAL









.090" (2,29) PANEL THK. .125" (3,18) PANEL THK.

PART NO. 432702263 PART NO

432802263 BLACK

PANEL MOUNTING

For part numbers 432502263, 432602263

.005 R.

(0,13) MAX. TYP

.595 ± .605

 $(15,11 \pm 15,37)$



.495 ± .505

(12,57 ± 12,83)

432702263, 432802263 .005 R. .495 ± .505 (0,13) MAX. TYP. (12,57 ± 12,83) .620 ± .625 (15,75 ± 15,88)

For part numbers





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Features/Benefits

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



Models Available

Specifications

- CONTACT RATING: B contact material (EX25 Models): 0.4 VA max. @ 20 V AC or DC max. G contact material (EX21 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-26 for additional ratings.
- ELECTRICAL LIFE: 60,000 make-and-break cycles at full load.
- CONTACT RESISTANCE: Below 50 m21Ω typ. initial @
- 2-4 V DC, 100 mA, for both silver and gold plated contacts. INSULATION RESISTANCE: $10^{9}\Omega$ 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).

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

Typical Applications

- Instrumentation
- Telecommunications and networking equipment
- Computers and peripherals



Pushbutto

Materials

- CASE & BUSHING: Glass filled nylon 6/6, flame retardant (UL 94V-0).
- PLUNGER: Glass filled nylon or glass filled polyester (PBT) (UL 94V-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. See page A-26 for additional contact materials.
- COMMON CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate. See page A-26 for additional contact materials.

TERMINAL SEAL: Epoxy.

DISPOSABLE BOOT: Vinyl splashproof boot supplied standard. Remove and discard only after soldering and cleaning processes are complete.

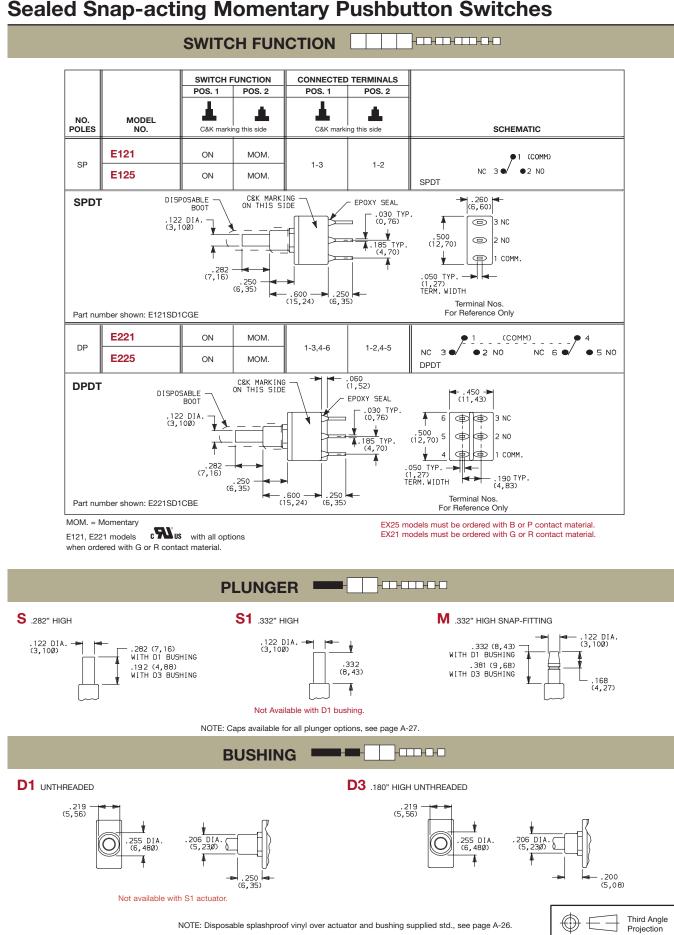
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-22 thru A-28. 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.

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 .282" high M .331" high, snap-fitting S1 .332" high	Bushing D1 Unthreaded D3 .180" high, unthreaded Terminations	Contact Material B Gold G Gold over silver P Gold, matte-tin R Gold over silver, matte-tin
	 V6 .460" high, V-bracket V8 .953" high, V-bracket V31 .460" high, snap-in V-bracket V41 .630" high, snap-in V-bracket V61 .460" high, snap-in V-bracket 	Seal E Epoxy and disposable splashproof boot

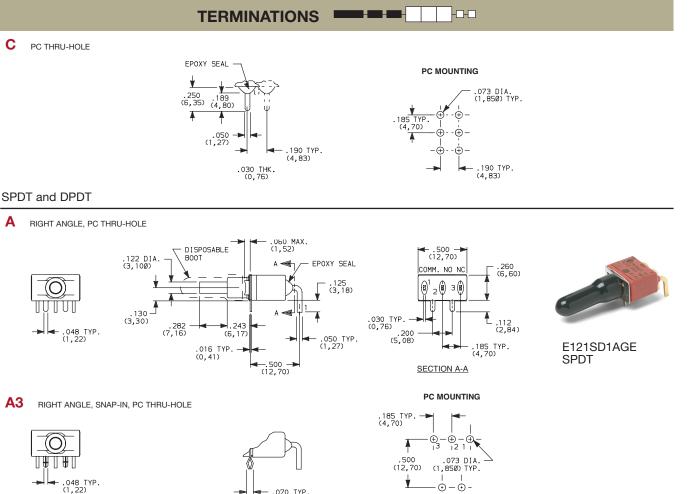


www.ckswitches.com



C&K 5 A

Pushbutton >



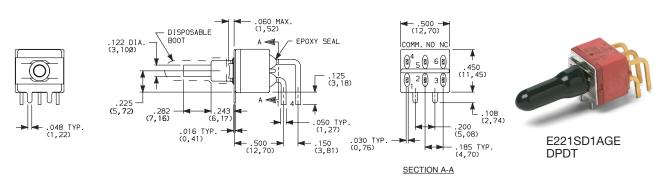
NOTE: Terminal bend radii and lead-in manufacturing option.

Α RIGHT ANGLE, PC THRU-HOLE

С

Α

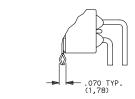
A3



.070 TYP. (1,78)

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

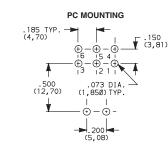




NOTE: Terminal bend radii and lead-in manufacturing option.



5 Aug 20

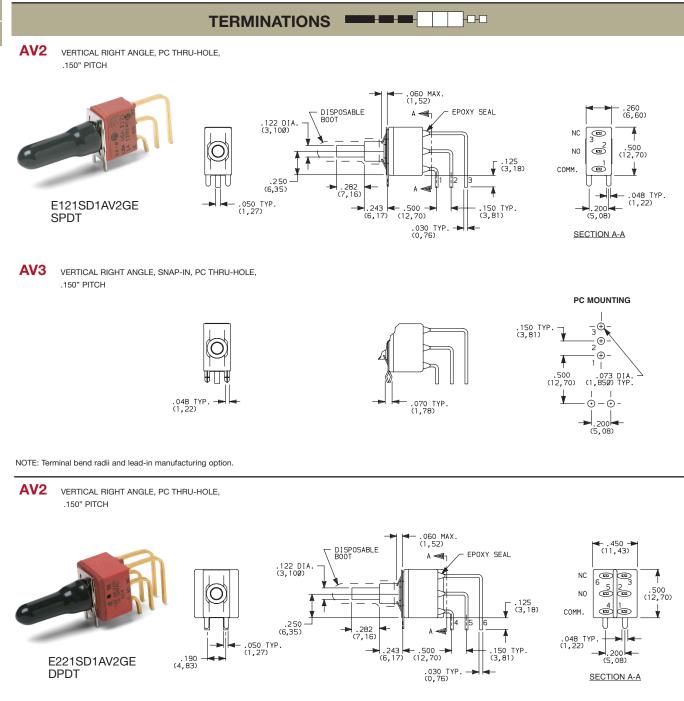


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⊨.₂₀₀⊧ (5,08)

Third Angle Projection

www.ckswitches.com



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



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



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

PC MOUNTING

-_⊕-__6⊕-

- ⊕ - ⊕ -- ⊕ - ⊕ -1 | 4 | .073 DIA. .073 DIA.

 $\oplus - \oplus$

.150 TYP. (3,81)

V

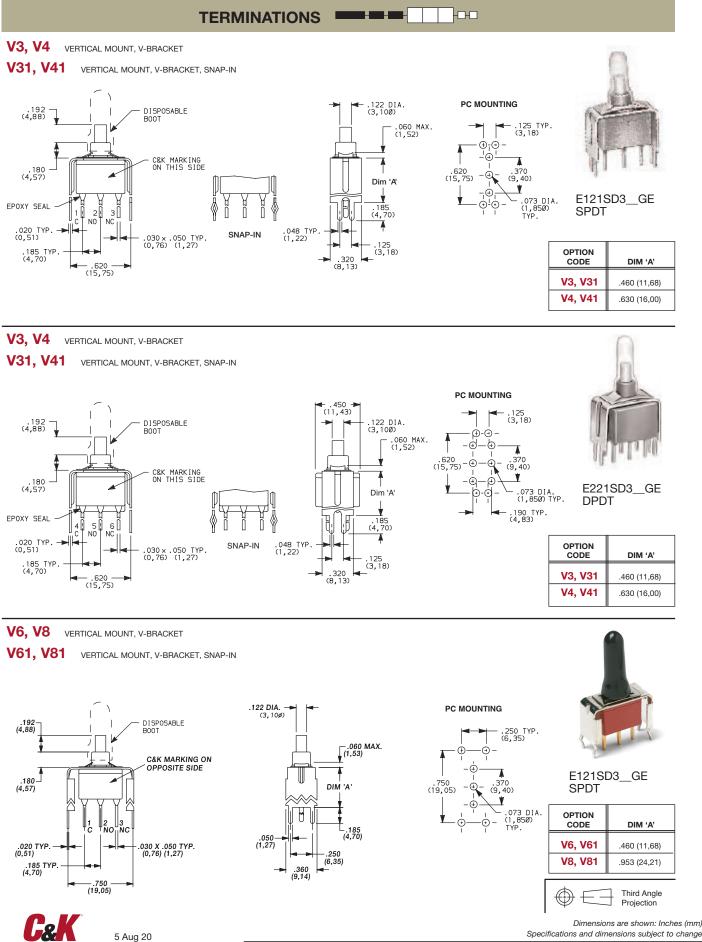
.500

.190 TYP. (4,83)

.200 (5,08)

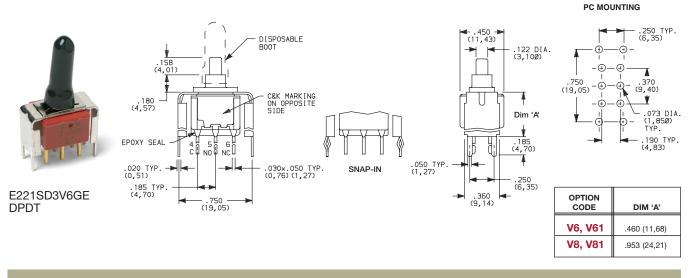
> Third Angle Projection

.070 TYP. (1,78)



TERMINATIONS

- V6, V8 VERTICAL MOUNT, V-BRACKET
- V61, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS		
В	GOLD ¹	GOLD ¹	LOW LEVEL/DBY CIBCUIT	EX25 MODELS ONLY: 0.4 VA MAX.	
Р		MATTE-TIN ⁴		@ 20 V AC OR DC MAX.	
G	GOLD OVER	GOLD ³		EX21 MODELS ONLY: 0.4 VA MAX @ 20 V AC OR	
R	SILVER ^{2,3}	MATTE-TIN ⁴	LOW LEVEL/DRY CIRCUIT OR POWER	DC MAX. OR 1 AMP @ 120 V AC OR 28 V DC.	

* 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 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 alloy over nickel plate.

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

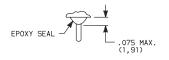
E121, E221 models CNUS with all options when ordered with mandatory G, or R contact material.

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

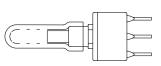
R or G contact material must be ordered with EX21 models.



E EPOXY SEAL AND DISPOSABLE SPLASHPROOF BOOT



Disposable splashproof boot supplied standard. Remove and discard boot *only after* soldering and cleaning processes are complete.

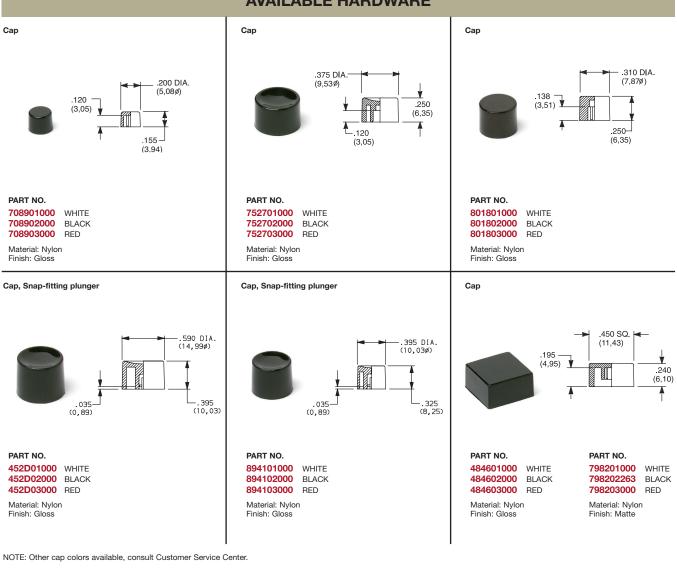






A Pushbutton

AVAILABLE HARDWARE



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.







PART NO.	PART NO.	
432702263	432802263	BLACK
	PANEL MOU	ITING
For part numbers 4325xxxxx, 4326xxx		432
.005 R. (0,13) MAX. TYP.	.495 ± .505 (12,57 ± 12,83)	

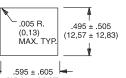
 (15.11 ± 15.37)

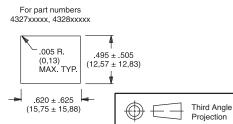


.125" (3,18) PANEL THK.

.090" (2,29) PANEL THK.

PART NO





Dimensions are shown: Inches (mm)

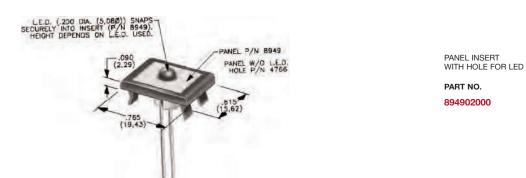
Specifications and dimensions subject to change

AVAILABLE HARDWARE

PANEL INSERTS

Pushbutton >

Above frames (part nos. 432XXXXX) 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.



ERT BLAN FOR LED WITH

BLANK PANEL INSERT WITHOUT HOLE FOR LED

PART NO. 476602000 BLACK

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



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

 \bigcirc

Third Angle

Projection

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

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-makecontacts. 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 m
 typ. initial @
- 2-4 V DC, 100 mA, for both silver and gold plated contacts. INSULATION RESISTANCE: $10^9\Omega$ 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.

Typical Applications

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



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

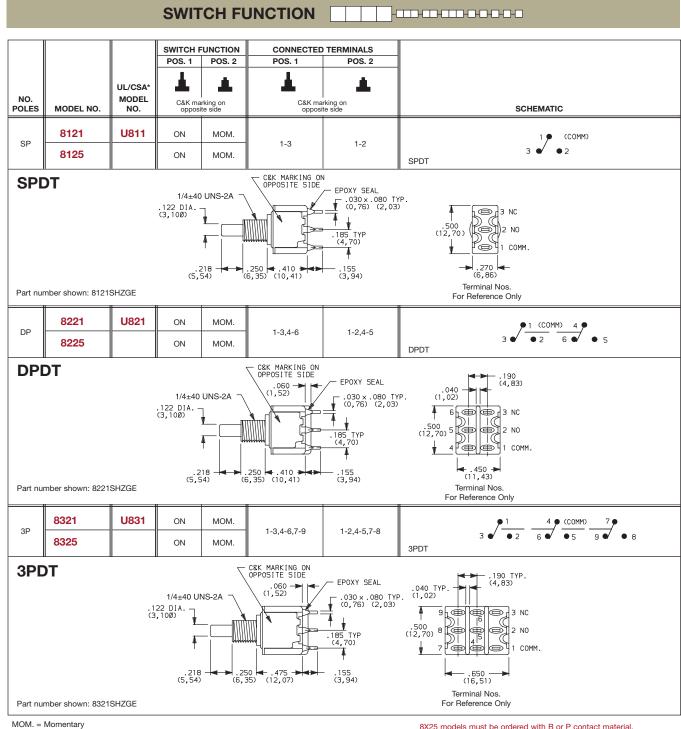
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-30 thru A-45. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.

Switch Function 8121 SPDT On-Mom. 1 Amp 8125 SPDT On-Mom. 0.4VA 8221 DPDT On-Mom. 1 Amp 8225 DPDT On-Mom. 1 Amp 8321 3PDT On-Mom. 0.4VA 8321 3PDT On-Mom. 0.4VA 8421 4PDT On-Mom. 0.4VA 8421 4PDT On-Mom. 0.4VA 8425 4PDT On-Mom. 0.4VA 8425 4PDT On-Mom. 0.4VA Note: UL models available, see page A-30 and A-31.	Actuator or Plu S Plunger NONE Snap-in J80 Snap-in J81 Snap-in w/fra J82 Snap-in w/fra flush cap J84 Snap-in w/fra flush cap J85 Snap-in w/fra J95 PC w/V-brac L Plunger M Snap-fitting p	ame ame for LED ame & ame for LED, ame & LED ket & LED	 Bushing J 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 G Gold R Gold mat	d, matte-tin d over silver d over silver, te-tin xy xy potted	4 Ora 5 Yelli 6 Gre 7 Blue	ow without LED een 5 Yellow
TerminationsARight angle, PCAV2Vertical right aCPC Thru-holeZSolder lugA2Right angle, PCA3Right angle, sr	ngle, PC thru-hole	A6 Right a AV1 Vertical	ngle, PC thru-hole, reversed termin ngle, PC thru-hole right angle, PC thru-hole right angle, snap-in, PC thru-hole	V3 V4 V6 V7 V8	.460" high, V-bracket	V61 W W1 W3 W4 1	y 460" high, snap-in V-bracket 460" high, snap-in V-bracket 750" long, wire wrap 964" long, wire wrap 425" long, wire wrap 1.062" long, wire wrap Quick connect Dimensions are shown: Inci

es (mm)

change

A-29



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

8X25 models must be ordered with B or P contact material. 8X21 and U8X1 models must be ordered with G or R contact material.

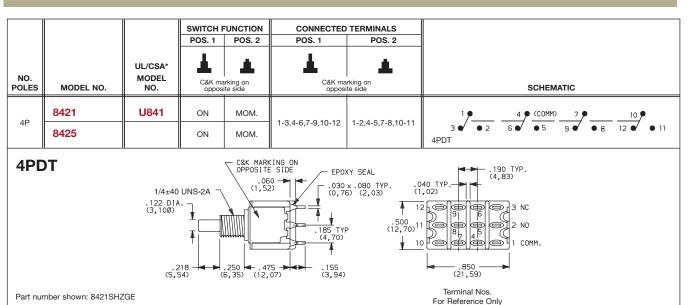


Pushbutton >

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

Third Angle Projection

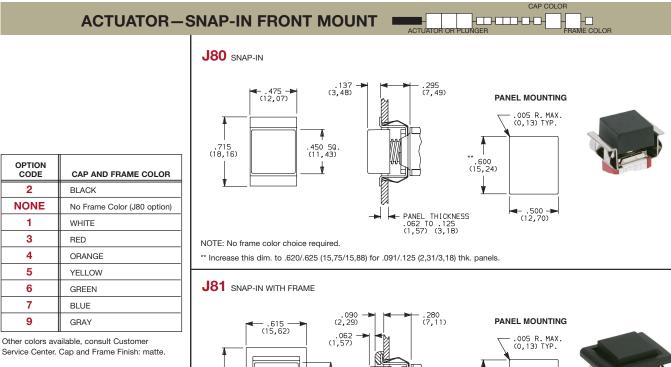
SWITCH FUNCTION



MOM. = Momentary

* U811 thru U841 model numbers c w with all options (except R, R2 terminations) when ordered with G 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.



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

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.

Third Angle Projection

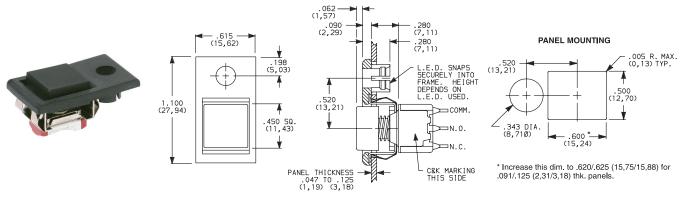
Specifications and dimensions subject to change

Dimensions are shown: Inches (mm)

ACTUATOR-SNAP-IN FRONT MOUNT

J83 SNAP-IN WITH FRAME AND FLUSH CAP PANEL THICKNESS .047 TO .125 (1,19) (3,18) PANEL MOUNTING - .615 -(15,62) .005 R. MAX. (0,13) TYP. .765 (19,43) .450 SQ. (11,43) ** ^{**}.600 (15,24) ¥ ¥ - .500 -(12,70)

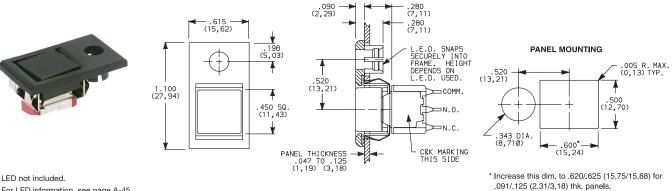
J82 SNAP-IN WITH FRAME FOR LED



LED not included.

For LED information, see page A-45.

J84 SNAP-IN WITH FRAME FOR LED, FLUSH CAP



For LED information, see page A-45.

OPTION CODE	CAP AND FRAME COLOR
2	BLACK
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.

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

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



www.ckswitches.com

Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change



9 Feb 22

FRAME COLOR

8020 Series



8121J85ZGE223 SPST

Available with C, W-W4, Z or Z3 terminations and SPDT models only. For LED information see page A-45.

.079 (2,01)

J85

.765 (19,43)

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SNAP-IN WITH FRAME AND LED

- .615 -(15,62)

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

OPTION CODE	CAP AND FRAME COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
6	GREEN
7	BLUE
9	GRAY

ACTUATOR-SNAP-IN FRONT MOUNT

Ø

.280

PANEL THICKNESS .047 T0 .125 (1,19) (3,18)

SHORT LEAD IS CATHODE

N.C.

N.O.

COMM. C&K MARKING OPPOSITE SIDE

.152 (3,86)

4

v

.197 .450 SQ. (5,00) (11,43)

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OPTION CODE	LED COLOR	
3	RED	
5	YELLOW	
6	GREEN	
For LED information see page A-45		

Snap-acting Momentary Pushbutton Switches

.600*

¥

.091/.125 (2,31/3,18) thk. panels.

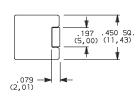
PANEL MOUNTING

.005 R. MAX. (0,13) TYP.

> - .500 -(12**,**70)

* Increase this dim. to .620/.625 (15,75/15,88) for

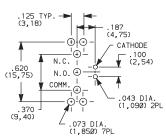
J95 PC WITH V-BRACKET AND LED



 .445 → (11,30) 	✓ .466 → (11,84) / SHORT LEAD IS CATHODE	
	N.C.	
	N.O.	
	сомм.	
	C&K MARKING OPPOSITE SIDE	

OPTION CODE	CAP AND FRAME COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
6	GREEN
7	BLUE
9	GRAY

PC MOUNTING



OPTION CODE	LED COLOR	
3	RED	
5	YELLOW	
6	GREEN	
Fault ED information and a de		

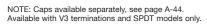
For LED information see page A-45.



8121J95V3GE23 SPST



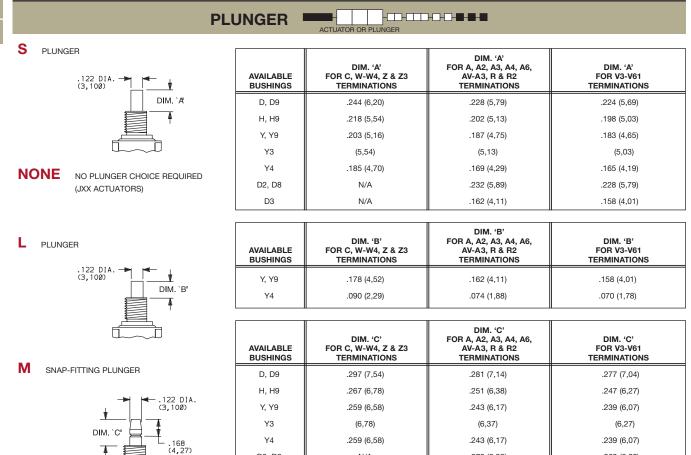
Specifications and dimensions subject to change





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Dimensions are shown: Inches (mm)



N/A = NOT AVAILABLE

D2, D8

D3

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)	 280" HIGH THREADED, KEYWAY 28034" HIGH UNTHREADED, KEYWAY 	 H .250"34 HIGH THREADED, FLAT H9 .250"34 HIGH UNTHREADED, FLAT 	 Y .350" HIGH THREADED, KEYWAY Y9 .350" HIGH UNTHREADED, KEYWAY
		.028 (0,71)	.314 DIA. (7, 980).	.028 .028
		1/4-40 UNS-2A .280 (7,11)	1/4-40 UNS-2A MFG. OPTION-RELIEF OR IMPERFECT THD. .040 (1,02) .020 (0,51)	1/4-40 UNS-2A .350 (8, 89)
		D9 bushing standard with A-A6, R, R2 AV-AV3 terminations.	H bushing standard with C, W-W4, Z or Z H, H9 bushings not available on single pol A3-A6, R, R2 terminations. Will withstand 12 in./lbs. of torque with no distortion.	e models with
C &K	9 Feb 22			Dimensions are shown: Inches (mm) ecifications and dimensions subject to change

N/A

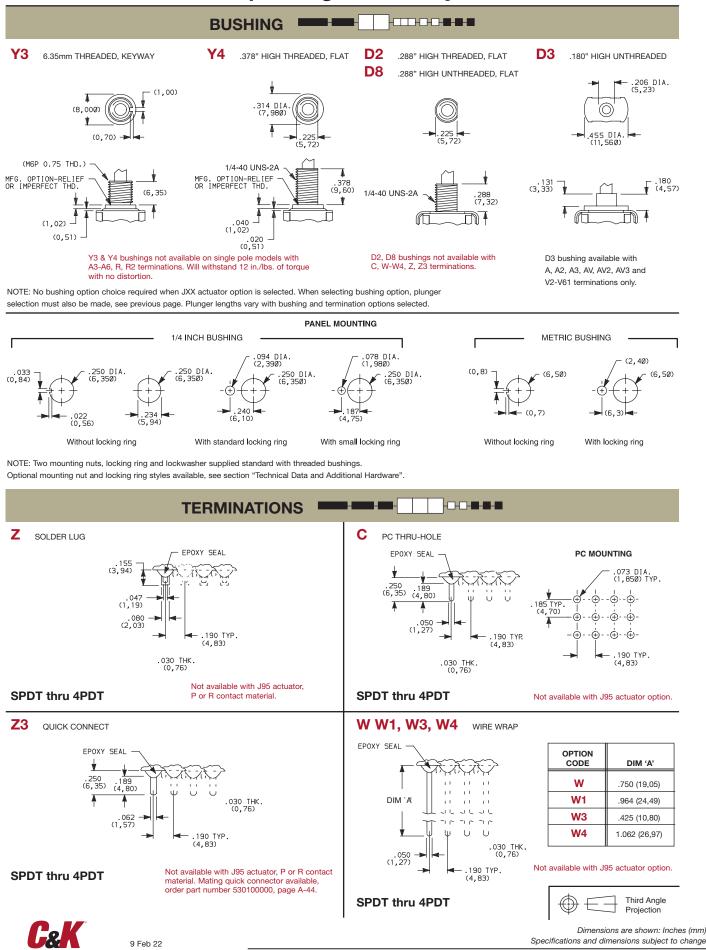
N/A

.273 (6,93)

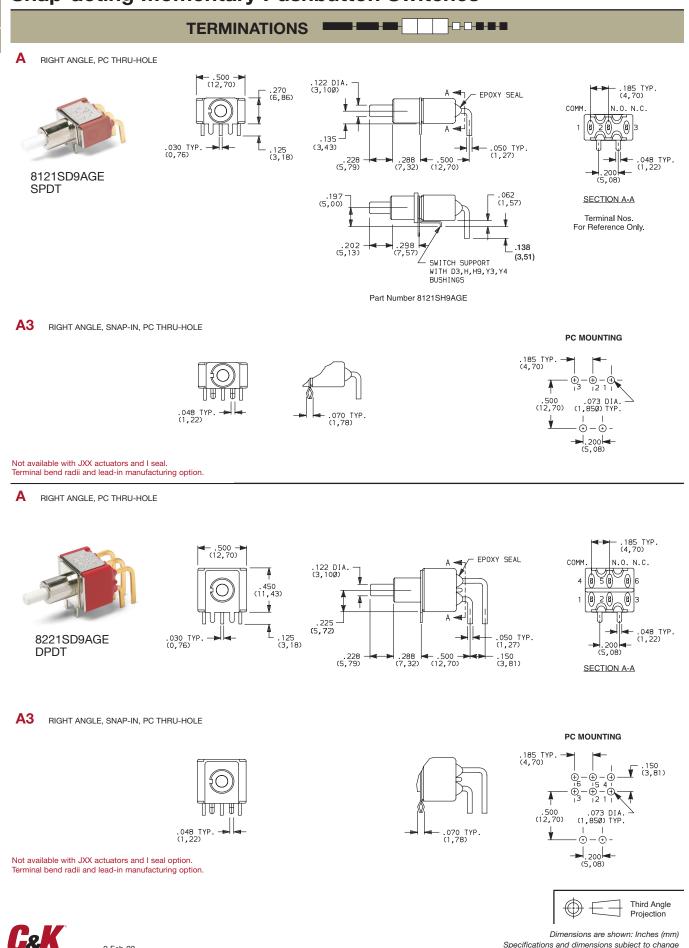
.361 (9,17)

.269 (6,83)

.357 (9,07)

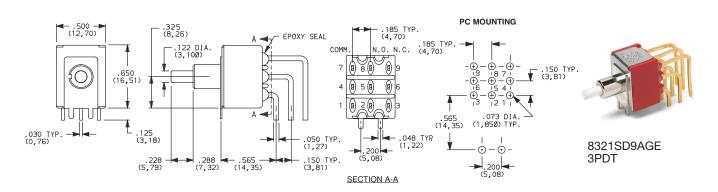


Pushbutton >



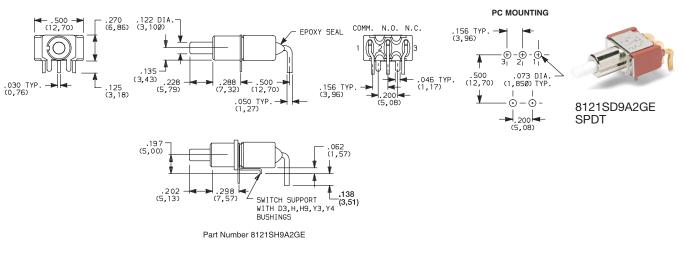
TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE



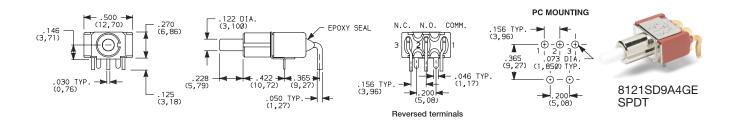
Not available with JXX actuators and I seal option. Terminal bend radii and lead-in manufacturing option

A2 RIGHT ANGLE, PC THRU-HOLE



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

A4 RIGHT ANGLE, PC THRU-HOLE, REVERSED TERMINALS



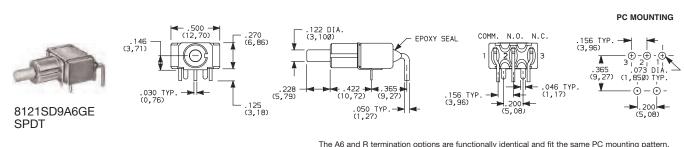
Not available with JXX actuators, D3, H, H9, Y3, Y4 bushings and I seal. Terminal bend radii and lead-in manufacturing option. The A4 and R2 termination options are functionally identical and fit the same PC mounting pattern. The switches, however, are shifted relative to the mounting holes. The PC pattern must clear the switch support legs. Unlike the R2, the A4 option is available with UL/CSA.



C&K

9 Feb 22

A6 RIGHT ANGLE, PC THRU-HOLE



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

The A6 and R 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 R, the A6 option is available with UL/CSA.

C&K

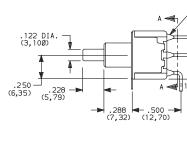
Dimensions are shown: Inches (mm) Specifications and dimensions subject to change

Third Angle Projection

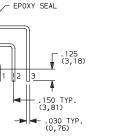
TERMINATIONS

.050 TYP. (1,27)

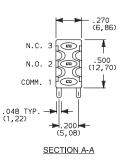
AV2



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



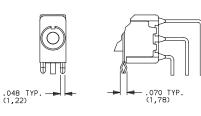
AV1

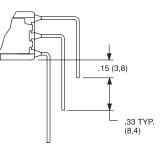




8121SD9AV2GE SPDT

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

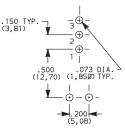




VERTICAL RIGHT ANGLE, EXTENDED,

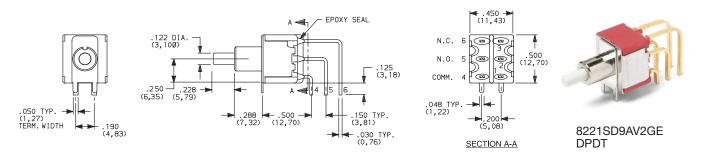
PC THRU-HOLE, .150" PITCH





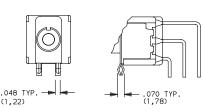
Not available with JXX actuators and I seal Terminal bend radii and lead-in manufacturing option.

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



AV3

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

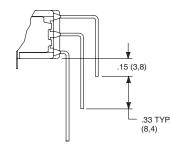


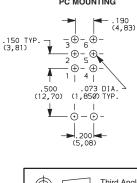
Not available with JXX actuators and I seal. Terminal bend radii and lead-in manufacturing option.



(1,22)

AV1 VERTICAL RIGHT ANGLE, EXTENDED, PC THRU-HOLE, .150" PITCH

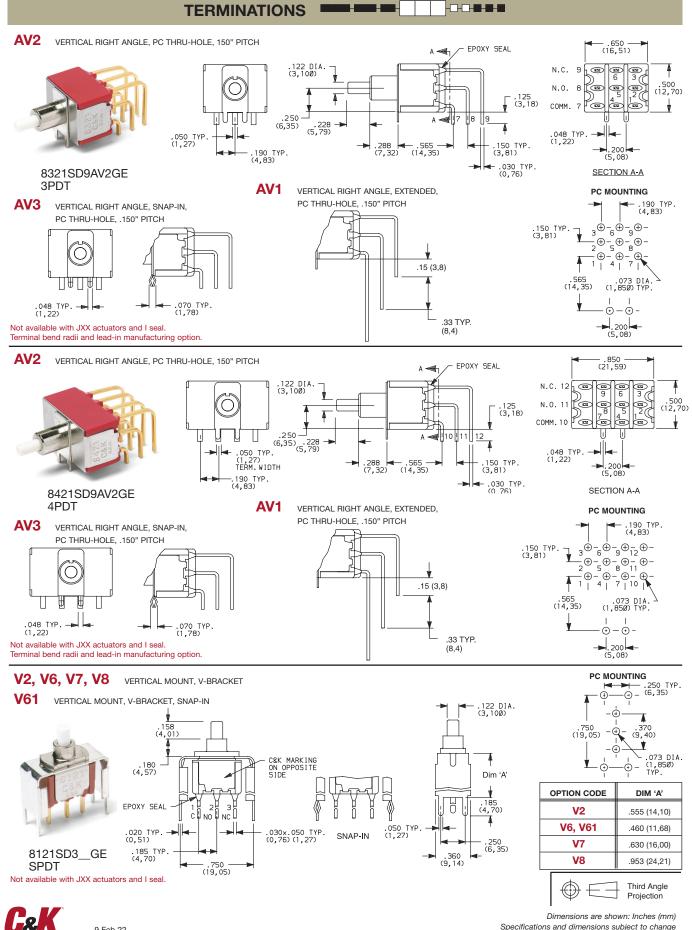




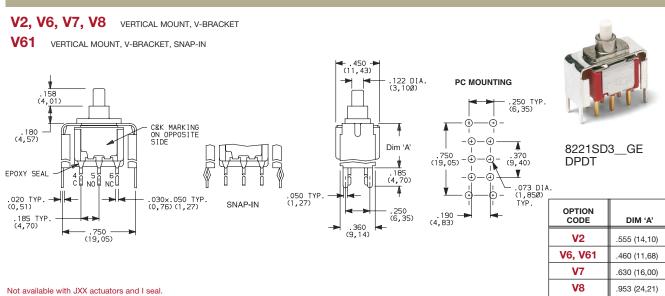
Third Angle Projection

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

PC MOUNTING

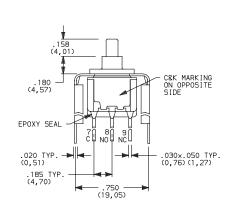


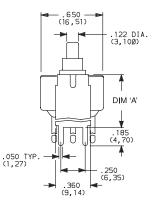
┝ᢕᢕ᠊᠊᠊᠊᠊᠊᠊᠊᠊᠊᠊᠊᠊᠊᠊ -----**TERMINATIONS**

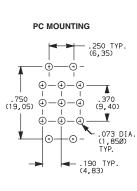




V2, V7, V8 VERTICAL MOUNT, V-BRACKET







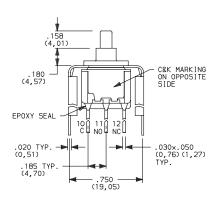


8321SD3__GE 3PDT

OPTION CODE	DIM 'A'
V2	.555 (14,10)
V 7	.630 (16,00)
V 8	.953 (24,21)

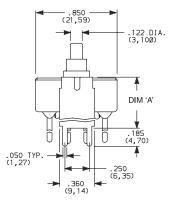
Not available with JXX actuators and I seal

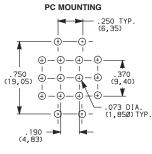




Not available with JXX actuators and I seal.







OPTION CODE

V2

V7

V8

DIM 'A'

.555 (14,10)

.630 (16,00)

.953 (24,21)

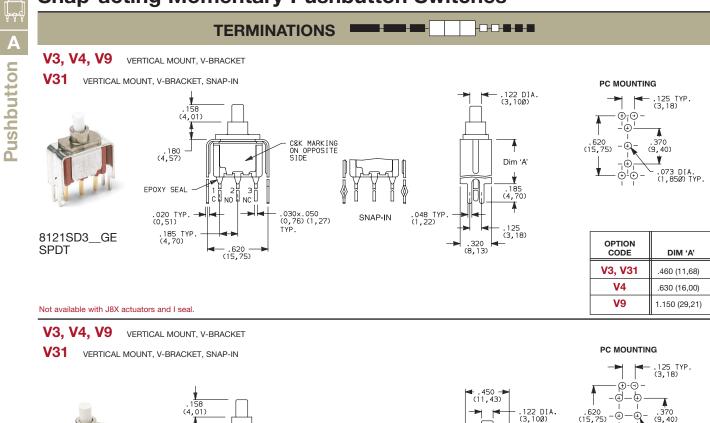


8421SD3__GE 4PDT

		Third Angle Projection
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Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change



C&K MARKING ON OPPOSITE SIDE

.030x.050 (0,76)(1,27) TYP.

SNAP-IN

.048 TYP

F

- .620 -(15,75)

Not available with J8X actuators and I seal

8221SD3__GE

DPDT

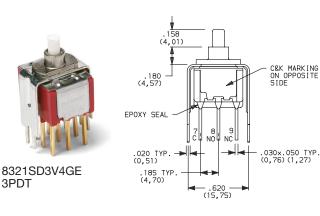
V4, V9 VERTICAL MOUNT, V-BRACKET

.180 (4,57)

EPOXY SEAL

.020 TYP. (0,51)

.185 TYP (4,70)



Not available with JXX actuators and I seal.



-.650 -(16,51) .122 DIA. (3,100) .630 (16,00) 1 .185 (4,70) 4 .048 TYP. (1,22) .125 (3,18) .320 (8,13)

PC MOUNTING

¥

.073 DIA. (1,850) TYP.

DIM 'A'

.460 (11,68)

.630 (16,00)

1.150 (29,21)

Ð

OPTION

CODE

V3, V31

V4

V9

.190 (4,83)

Dim 'A'

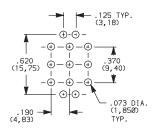
.185

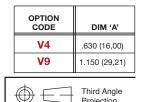
4

.125 (3,18)

.320 (8,13)

b-6





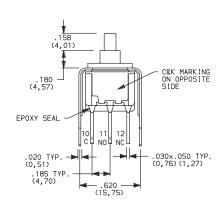
Projection

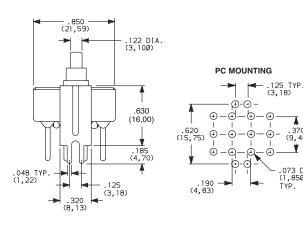
Dimensions are shown: Inches (mm) Specifications and dimensions subject to change

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<u>}</u>____**₽_₽**₽ TERMINATIONS

V4, V9 VERTICAL MOUNT, V-BRACKET







8421SD3V4GE 4PDT

370

(9,40)

¥

.073 DIA. (1,850)

TYP.

OPTION CODE	DIM 'A'
V 4	.630 (16,00)
V 9	1.150 (29,21)

Not available with JXX actuators and I seal

CONTACT MATERIAL <u>}</u>____∎_∎

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING		RATINGS
В	GOLD 1	GOLD 1	LOW LEVEL/DRY CIRCUIT	8x25 MODELS ONLY: 0.4 MAX.
Р	GOLD	MATTE-TIN ⁴		@ 20 V AC OR DC MAX.
G	GOLD OVER SILVER 2,3	GOLD ³	LOW LEVEL/DBY	8X21, U8X1 MODELS ONLY: 0.4 VA MAX
R	GOLD OVEN BILVEN -	MATTE-TIN ⁴	CIRCUIT OR POWER	@ 20 V AC OR DC MAX. OR 1 AMP @ 120 V AC OR 28 V DC.

* 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.

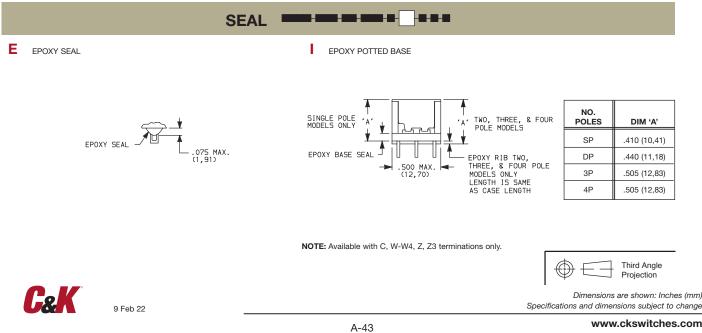
NOTE: Any models supplied with B, P, R or G contact material are RoHS compliant.

U811-U841 models ${}_{\circ}$ \mathbf{N} ${}_{\circ}$ ${}^{\circ}$ with all options (except R, R2 terminations) when ordered with mandatory G or R contact material.

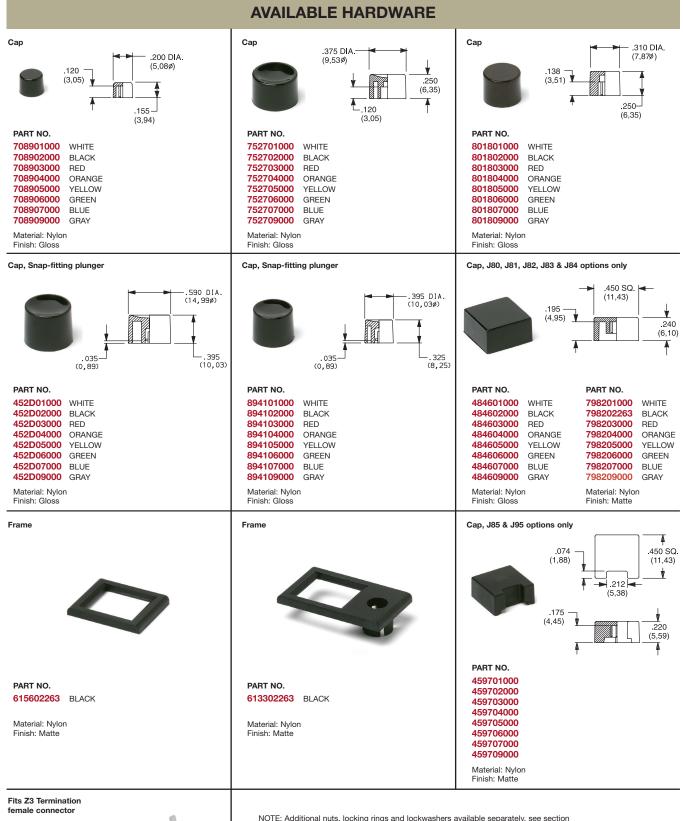
B or P contact material must be ordered with 8X25 models.

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

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



Pushbutton >



PART NO.

530100000



Available in loose pieces.



A-44

"Technical Data and Additional Hardware".

Other cap & frame colors available, consult Customer Service Center.

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

Third Angle Projection

AVAILABLE HARDWARE

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

For part nu 4325xxxx, 4

005

(0,13

MAX

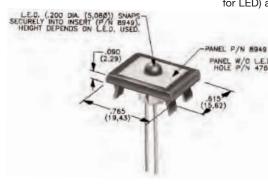
.595 ± (15,11 ±

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

432802263 BLACK

PANEL MOUNTING	
umbers	For part numbers
1326xxxxx	4327xxxxx, 4328xxxxx
R. $(12,57 \pm 12,83)$ $(12,57 \pm 12,83)$.005 R. (0,13) MAX. TYP. (0,13)
. 605	.620 ± .625
15,37)	(15,75 ± 15,88)

Panel Inserts



Above frames (part nos. 432XXXXX) 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

> > Flat denotes

cathode

.230 DIA

(5.84)

200 DIA

(5.08[°])

PART NO.

894902000

BLANK PANEL INSERT WITHOUT HOLE FOR LED

PART NO. 476602000 BLACK

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

LED INFORMATION

SWITCHES WITH LED SUPPLIED: J85, J95 OPTIONS:

Rectangular LEDs are supplied on 8020 Series pushbutton switches with J85 and J95 options. These LEDs are factory installed and are not replaceable. The following specifications apply:

			TYP.	TYP.	MAX RAT	INGS AT 25°C AMBIENT TEMPERATURE			
OPTION CODE	COLOR	TYP. INTENSITY	FORWARD	FORWARD	FORWARD VOLTAGE	CONTINUOUS FORWARD CURRENT	POWER DISSIPATION		
6	Green	1.0 mcd		20 mA		50 mA	125 mW		
3	Red*	0.5 mcd	2.1 V	10 mA	2.5 V	30 mA	75 mW		
5	Yellow	4.0 mcd		20 mA		50 mA	125 mW		

Process Information: Soldering to LED leads must be completed within 5 seconds at 500°F (260°C) maximum.

Caution: Circuit elements must limit forward current of LED to 50mA max. continuous. * Extra-bright red LED available (typ. intensity 4.5 mcd), consult Customer Service Center. LEDs are not supplied with J82, J84 options. LED snaps into switch frame surrounding actuator and is wired externally.



A-45

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

.025 SQ.

TYP. (0,63)

.030-

(0,76)

.340

Suggested LED for J82 & J84 options.

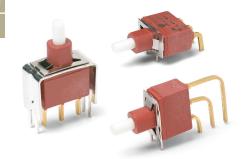
Dimensions for reference only

(8,64)

Third Angle Projection

750

(19,05)



Features/Benefits

- Process sealed, withstands soldering and cleaning
- Long life contact design
- Snap-fitting plunger available, accepts a variety of caps
- RoHS compliant models available

Typical Applications

- Instrumentation
- Telecommunications and networking equipment
- Computers and peripherals

c Sus Models Available

Specifications

ushbutton >

Materials

CONTACT RATING: Q contact material: 4 AMPS @ 125 V AC or 28 V DC. See page A-50 for additional ratings.

ELECTRICAL LIFE: 40,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 20 mΩ typ. initial @ 2–4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: $10^9\Omega$ 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).

NOTE: Any models supplied with P, Q, B 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.

- CASE & BUSHING: Glass filled nylon 6/6, flame retardant (UL 94V-0).
- PLUNGER: Glass filled nylon or glass filled polyester (PBT) (UL 94V-0), with internal o-ring seal standard.
- SWITCH SUPPORT: Brass or steel, matte-tin plated.

SWITCH SUPPORT RETAINER: Stainless steel.

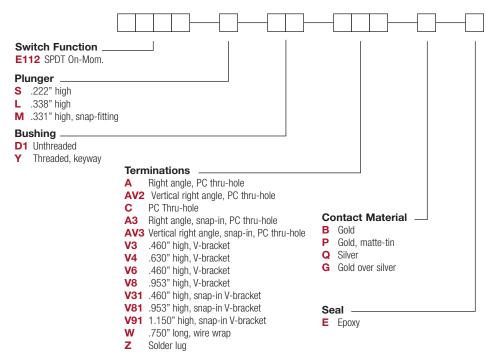
- END CONTACTS: Q contact material: Coin silver, silver plated. See A-50 for additional ratings.
- CENTER CONTACTS & ALL TERMINALS: Q contact material: Copper alloy, silver plated. See page A-50 for additional ratings.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut & locking ring-Brass, nickel plated. Lockwasher-Steel, nickel plated.

Build-A-Switch

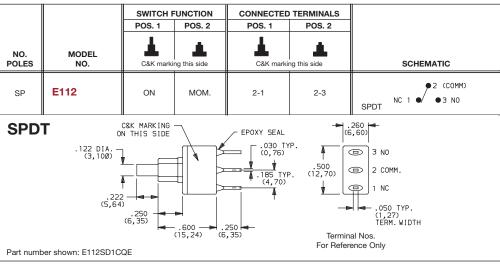
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-47 thru A-51. For additional options not shown in catalog, consult Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.



Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

SWITCH FUNCTION



MOM. = Momentary

All models

with all options when ordered with G or Q contact material.

PLUNGER

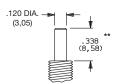
S .218" HIGH



Standard with D1 bushing (as shown). † Subtract .100 (2,54) from plunger length when ordered with Y bushing.

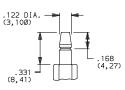
.338" HIGH

with D1 bushing.



Standard with Y bushing (as shown).

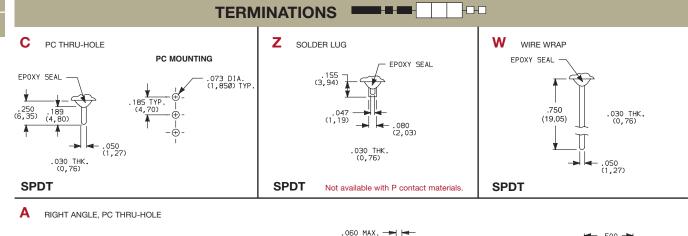
M .331" HIGH, SNAP-FITTING



NOTE: Caps available for all plunger options, see pages A-50 and A-51.

** Add .100 (2,54) from plunger length when ordered

-----**BUSHING** D1 UNTHREADED Y THREADED, KEYWAY C&K marking PANEL MOUNTING .219 (5,56) KEYWAY this side. 1/4-40 NS .240 DIA. (6.10Ø) 3 .033 ţ .250 DIA. (6,350) 255 DIA (6,48Ø) 2 .022 .350 (8,89) (6, L plunger standard with Y bushing. Available only with C, Z terminations. Hardware: One dress nut part number 299D01201, one hex nut and lockwasher supplied standard. S plunger standard with D1 bushing. Withstands 4 in./lbs. without distortion. Third Angle Projection NOTE: Internal o-ring actuator seal standard for all bushing options. Dimensions are shown: Inches (mm) 17 Mar 22 Specifications and dimensions subject to change



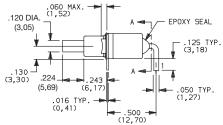
E112SD1ABE SPDT

A3

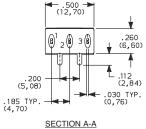
Pushbutton >



.070 TYP. (1,78)

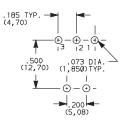


.50 (12,7)



AW RIGHT ANGLE, EXTENDED, PC THRU-HOLE

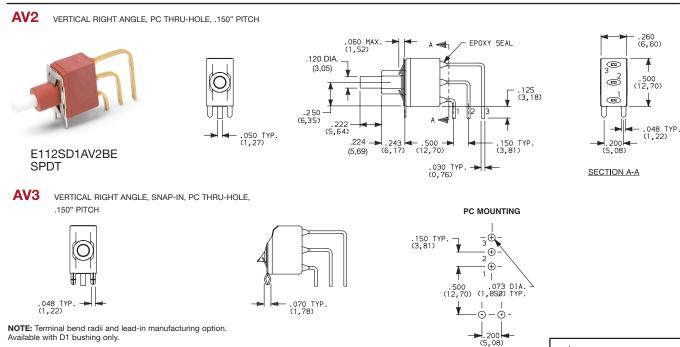
PC MOUNTING



NOTE: Terminal bend radii and lead-in manufacturing option. Available with D1 bushing only.

.048 TYP. (1,22)

RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



C&K

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

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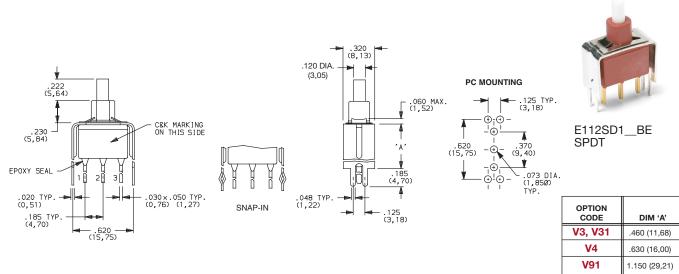
Third Angle Projection

100

TERMINATIONS

V3, V4 VERTICAL MOUNT, V-BRACKET

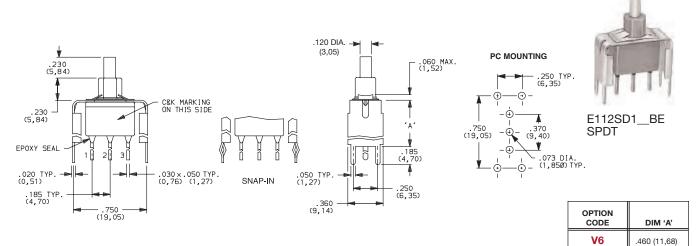
V31, V91 VERTICAL MOUNT, V-BRACKET, SNAP-IN



NOTE: Available with D1 bushing only.

V6, V8 VERTICAL MOUNT, V-BRACKET

V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



NOTE: Available with D1 bushing only.



V8, V81



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

.953 (24,21)

Pushbutton >

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS			
В	GOLD 1	GOLD ¹		0.4 VA MAX. @ 20 V AC OR DC MAX.		
Р	GOLD	MATTE-TIN ⁶	LOW LEVEL/DRY CIRCUIT			
Q	SILVER 4,5	SILVER 5	POWER	4 AMPS @ 125 V AC 0R 28 V DC.		
G	GOLD OVER SILVER 2,3	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX. @ 20 V AC OR DC MAX. OR 4 AMPS @ 125 V AC 0R 28 V DC.		

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

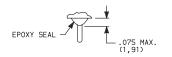
- ¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
- ² END CONTACTS: Coin silver, with gold plate over nickel plate.
- ³ CENTER CONTACTS & ALL TERMINALS: Coin silver, with gold plate
- over nickel plate.
- ⁴ END CONTACTS: Coin silver, silver plated.
- ⁵ CENTER CONTACTS & ALL TERMINALS: Copper alloy, silver plated.
- ⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate.

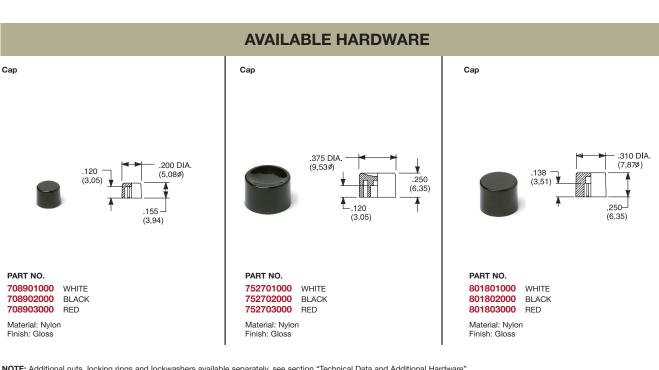
NOTE: Any models supplied with P, Q, B or G contact material are RoHS compliant.

All models **cN**us with all options when ordered with G or Q contact material. B contact material standard with all terminations except C, Z. Q contact material standard with C, Z terminations.

- P contact materials not available with Z terminations.
- SEAL

E EPOXY SEAL





NOTE: Additional nuts, locking rings and lockwashers available separately, see section "Technical Data and Additional Hardware". Other cap colors available, consult Customer Service Center.

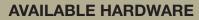


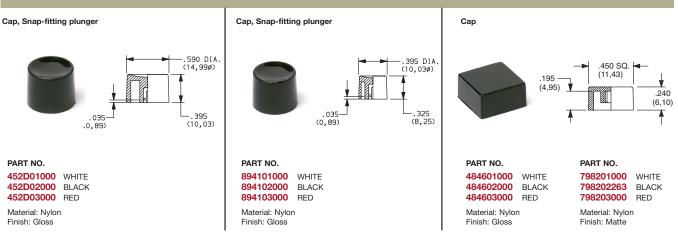
www.ckswitches.com

Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

Third Angle Projection





NOTE: Additional nuts, locking rings and lockwashers available separately, see section "Technical Data and Additional Hardware". Other cap 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.

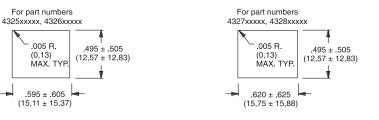




.090" (2,29) PANEL THK.

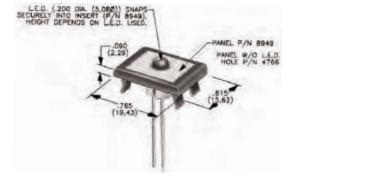
PART NO. 432702263 .125" (3,18) PANEL THK. PART NO. 432802263 BLACK

PANEL MOUNTING



Panel Inserts

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. 894902000 **PART NO. 476602000** BLACK

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



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

Third Angle Projection



Features/Benefits

- Long travel
- Available with LED
- Long life contact design
- Epoxy terminal seal compatabile with bottom wash cleaning
- RoHS compliant models available

Materials

Typical Applications

- Instrumentation
- Computers and peripherals
- Telecommunications and networking equipment



Specifications

CONTACT RATING: Q contact material: 6 AMPS @ 120 V AC or 28 V DC; 3 AMPS @ 250 V AC. See page A-59 for additional ratings.

ELECTRICAL LIFE: 50,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 20 m Ω typ. initial @

2-4 V DC, 100 mA, for both silver and gold plated contacts. INSULATION RESISTANCE: $10^9\Omega$ min.

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

OPERATING TEMPERATURE: -30°C to 65°C

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

CAP INSTALLATION FORCE: 10 lbs. maximum permissible.

NOTE: Any models supplied with P, R, S, Q, B 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.

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

PLUNGER: S, S1, S2 Options: Glass filled nylon or glass filled polyester (PBT) (UL 94V-0). L, L1 Options: Brass, nickel plated.

CAP & FRAME: Nylon, black standard.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

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

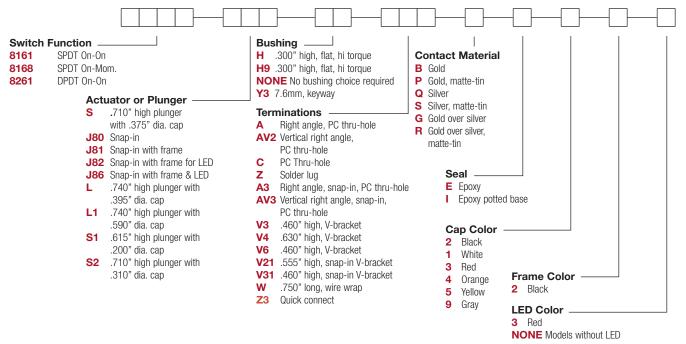
END CONTACTS: Q contact material: Coin silver, silver plated. See page A-59 for additional contact materials.

CENTER CONTACT & ALL TERMINALS: Q contact material: Copper alloy, silver plated. See page A-59 for additional contact materials.

- TERMINAL SEAL: Epoxy. Refer to soldering and cleaning in Technical Data Chapter.
- HARDWARE: Nut & Locking Ring: Brass, nickel plated; Lockwasher: Steel, nickel plated.

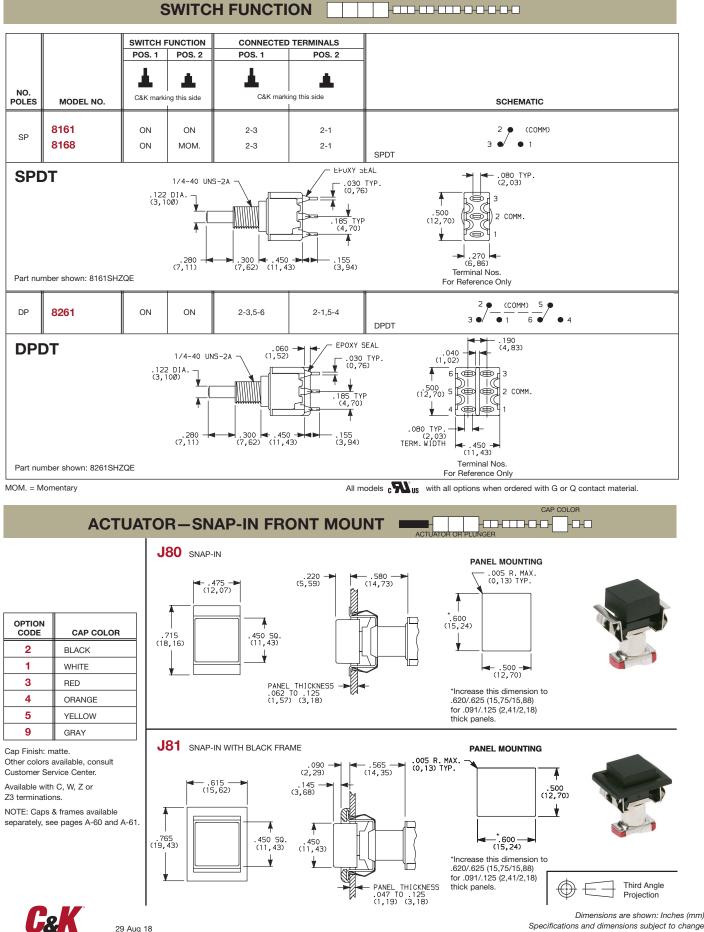
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-53 thru A-61. 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.





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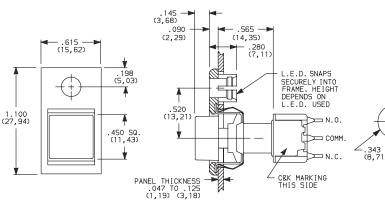
29 Aug 18

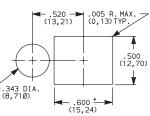
A-53

Specifications and dimensions subject to change

ACTUATOR-SNAP-IN FRONT MOUNT







PANEL MOUNTING

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

Available with C, W, Z or Z3 terminations.

LED not included.

For LED information, see page A-61.

NOTE: Caps & frames available separately, see pages A-60 and A-61.

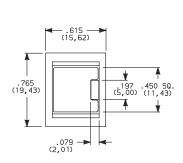
Other colors available, consult Customer Service Center.

OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
9	GRAY

ACTUATOR-SNAP-IN FRONT MOUNT

J86 SNAP-IN WITH BLACK FRAME AND LED





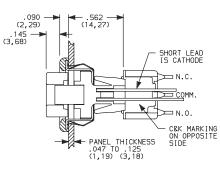
8161J86ZQE223 SPDT

Available with C, W, Z or Z3 terminations and SPDT models only.

NOTE: Caps & frames available separately, see pages A-60 and A-61.

Other colors available, consult Customer Service Center.

OPTION CODE	CAP COLOR		
2	BLACK		
1	WHITE		
3	RED		
4	ORANGE		
5	YELLOW		
9	GRAY		

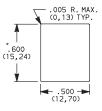


ACTUATOR OR PLUNGER

PANEL MOUNTING

LED COLOR

CAP COLOR



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

OPTION CODE	LED COLOR
3	RED

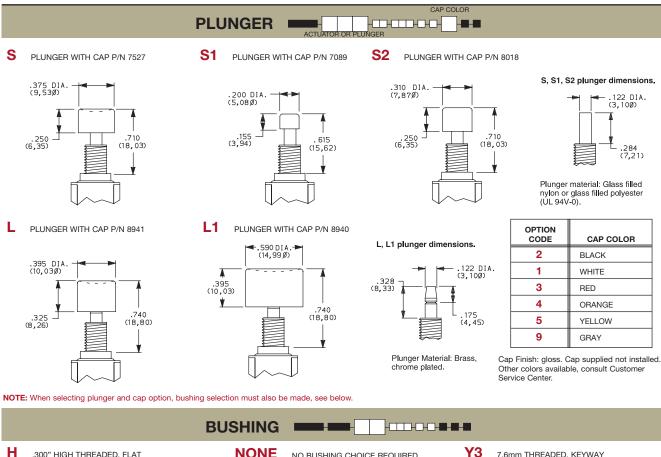
For LED information, see page A-61.

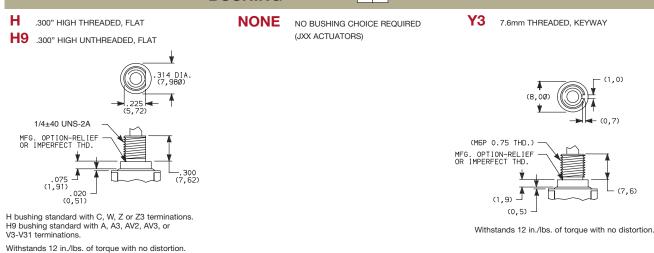


Specifications and dimensions subject to change

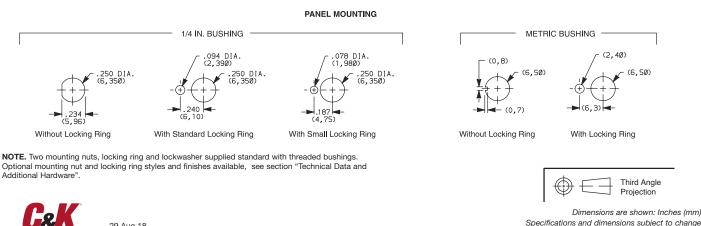


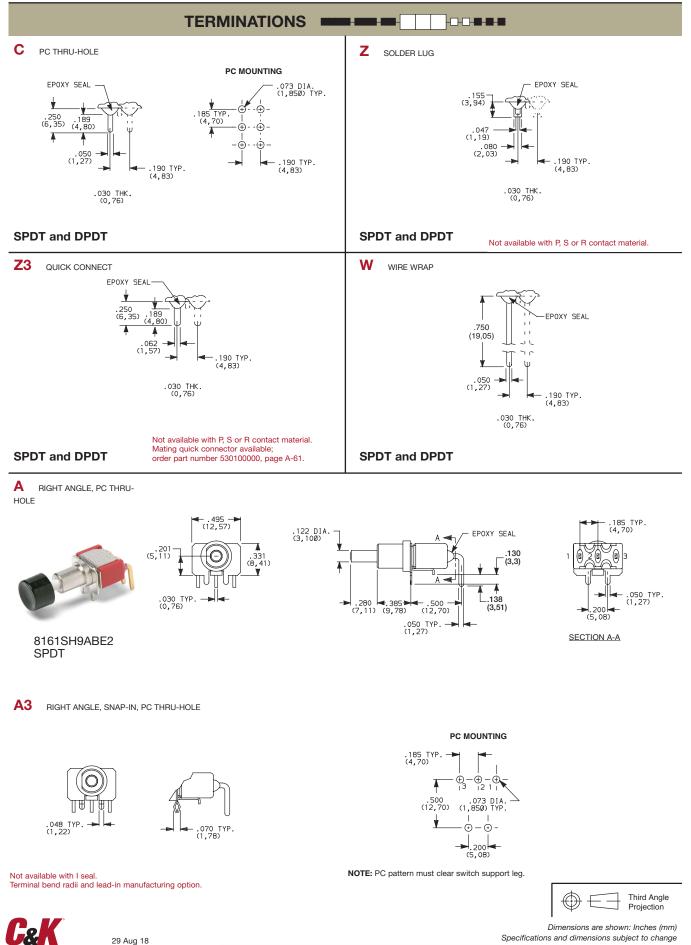
A-54





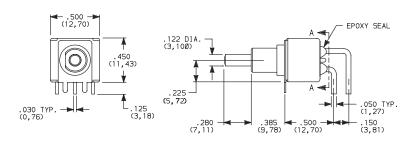
NOTE: When selecting bushing option, plunger selection must also be made, see above. No bushing option choice required when any JXX actuator option is selected.

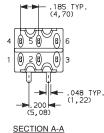




Pushbutton >

A RIGHT ANGLE, PC THRU-HOLE

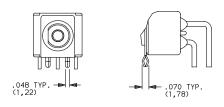


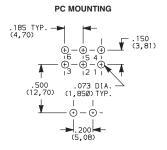




8261SH9ABE2 DPDT

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

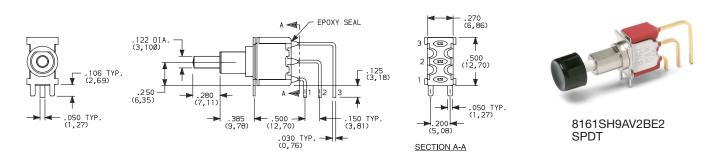




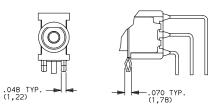
Not available with I seal.

Terminal bend radii and lead-in manufacturing option.

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



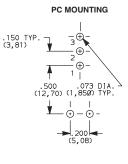
AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



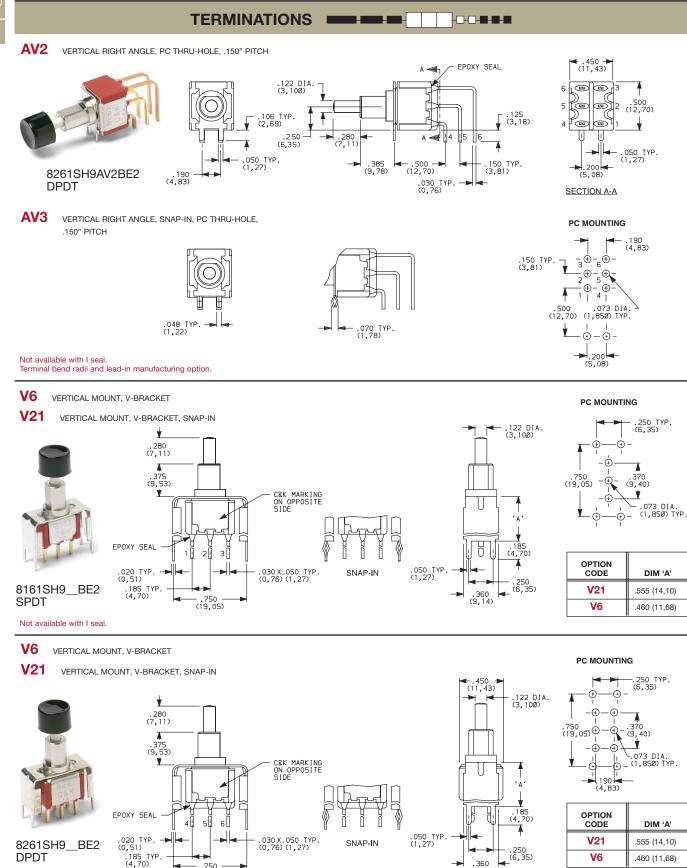
Not available with I seal. Terminal bend radii and lead-in manufacturing option.



29 Aug 18



Third Angle Projection



Not available with I seal.

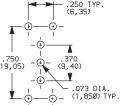


- .750 -(19,05)

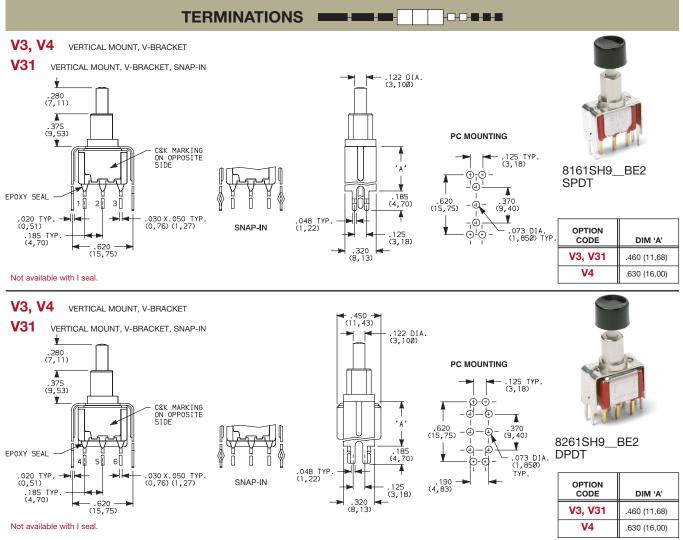
A-58

.360 (9,14)

Third Angle Projection



Pushbutton > 3



CONTACT MATERIAL

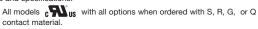
OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS			
В	GOLD 1	GOLD ¹				
Р		MATTE-TIN ⁶	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.		
Q	SILVER 4,5	SILVER 5		6 AMPS @ 120 V AC OR 28 V DC;		
S	SILVER 7,0	MATTE-TIN 6	POWER	3 AMPS @ 250 V AC.		
G	GOLD OVER	GOLD ³		0.4 VA MAX @ 20 V AC OR DC MAX. OR		
R	SILVER ^{2,3}	MATTE-TIN 6	LOW LEVEL/DRY CIRCUIT OR POWER	6 AMPS @ 120 V AC OR 28 V DC; 3 AMPS @ 250 V AC.		

* 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, silver plated.
- ⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate.

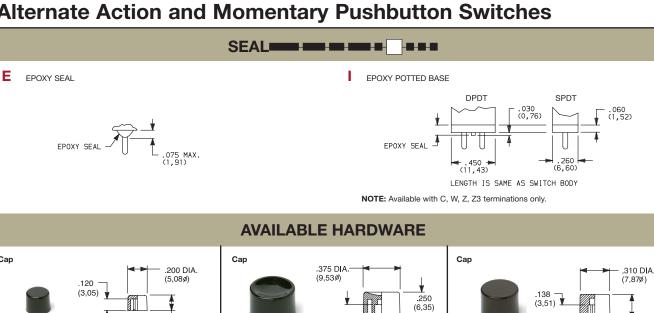
NOTE: Any models supplied with P, S, R,Q, B or G contact material are RoHS compliant.



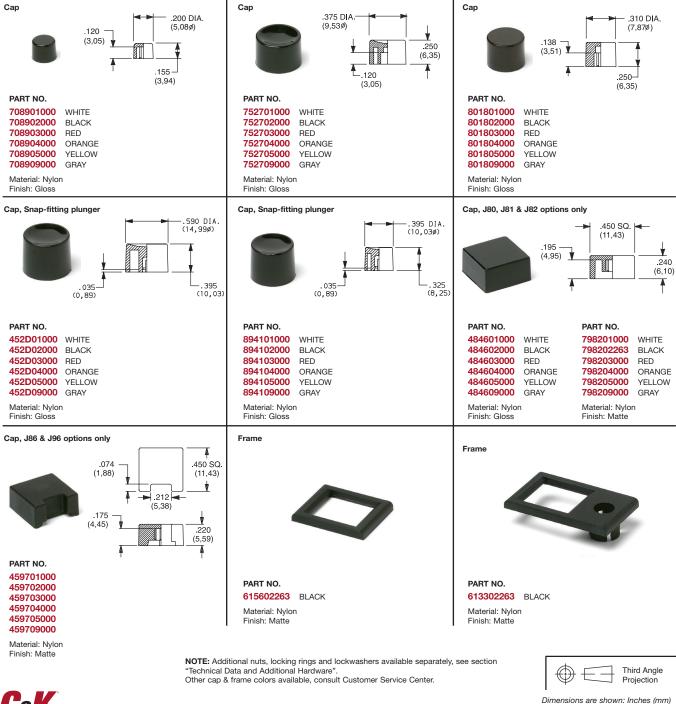


- B contact material standard with all terminations except C, Z & Z3.
- Q contact material standard with C, Z & Z3 terminations.
- P, S & R contact materials not available with Z & Z3 terminations.





29 Aug 18





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Specifications and dimensions subject to change

AVAILABLE HARDWARE

1 Contraction

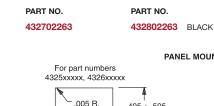
Fits Z3 Termination female connector

PART NO. 530100000 Available in loose pieces.

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.







(0.13)

MAX. TYP

 $.595 \pm .605$

 $(15,11 \pm 15,37)$

.090" (2,29) PANEL THK.

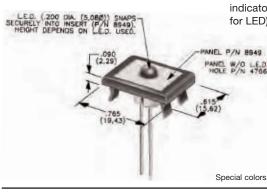
PANEL MOUNTING 495 + 505(12,57 ± 12,83)

.125" (3,18) PANEL THK.

4327xxxx, 4328xxxxx .005 R. .495 ± .505 (0.13) $(12,57 \pm 12,83)$ MAX, TYP .620 ± .625 $(15,75 \pm 15,88)$

For part numbers

Panel Inserts



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

WITHOUT HOLE FOR LED PART NO. 476602000 BLACK

BLANK PANEL INSERT

Special colors, custom markings available, consult Customer Service Center,

LED INFORMATION

SWITCHES WITH LED SUPPLIED: J86 OPTION:

Rectangular LEDs are supplied on 8060 Series pushbutton switches with J86 option. These LEDs are factory installed and are not replaceable. The following specifications apply:

			TYP.	TYP.	MAX RAT	NGS AT 25°C AMBIENT T	EMPERATURE	Flat denotes	1
OPTION CODE	COLOR	TYP. INTENSITY	FORWARD VOLTAGE	FORWARD	FORWARD VOLTAGE	CONTINUOUS FORWARD CURRENT	POWER DISSIPATION	cathode	¥.
6	Green	1.0 mcd		20 mA		50 mA	125 mW		Ť
3	Red*	0.5 mcd	2.1 V	10 mA	2.5 V	30 mA	75 mW	.230 DIA.	
5	Yellow	4.0 mcd		20 mA		50 mA	125 mW	340	.750 (19,05)

Process Information: Soldering to LED leads must be completed within 5 seconds at 500°F (260°C) maximum.

Caution: Circuit elements must limit forward current of LED to 50mA max. continuous.

* Extra-bright red LED available (typ. intensity 4.5 mcd), consult Customer Service Center.

LEDs are not supplied with J82 & J84 options. LED snaps into switch frame surrounding actuator and is wired externally.



Suggested LED for J82 & J84 options. Dimensions for reference only





Features/Benefits

- Pre-travel or over-travel models available
- Ratings up to 3 AMPS
- Reliable contact design
- RoHS compliant

Typical Applications

- Detection
- Telecommunications and networking equipment
- Computers and peripherals

® **FN** Models Available

Specifications

Materials

- CONTACT RATING: Q contact material (853X Models): 1 AMP @ 120 V AC or 28 V DC; (855X Models): 3 AMPS @ 120 V AC or 28 V DC. See page A-65 for additional ratings.
- ELECTRICAL LIFE:

853X MODELS: 250,000 actuations at full load. 855X MODELS: 10,000 actuations at full load.

CONTACT RESISTANCE: Below 30 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: $10^{9}\Omega$ min.

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

OPERATING TEMPERATURE: -30°C to 65°C.

TORQUE SPECS: T, T1 15/32" bushings - 50 in. lbs max. All other 1/4 -40 bushing types 12 in. lbs max. CASE: Glass filled phenolic or diallyl phthalate (DAP) (UL 94V-0).

PLUNGER: Phenolic or glass filled polyester, black standard(UL94V-0).

CAP & FRAME: Nylon, black, standard.

BUSHING: Brass, nickel plated.

- CONTACTS: Q contact material: Coin silver, silver plated. See page A-65 for additional contact materials.
- TERMINALS: Q contact material: Copper alloy, silver plated. See page A-65 for additional contact materials.

TERMINAL SEAL: Epoxy.

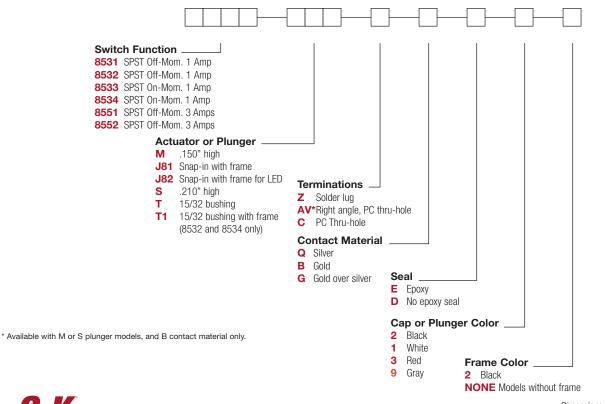
HARDWARE: Nut: Brass, nickel plated; Lockwasher: Steel, bright nickel plated.

NOTE: Any models supplied with Q, B 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.

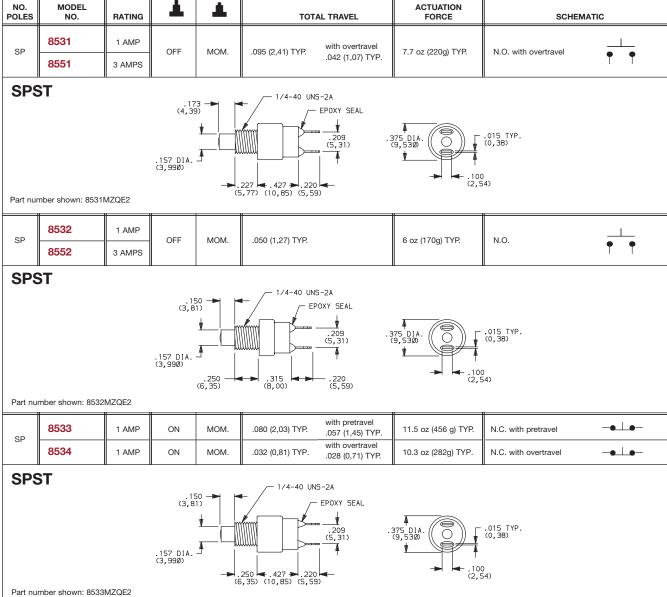
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-63 thru A-66. 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.





A Pushbutton SCHEMATIC • •



SWITCH FUNCTION

SWITCH FUNCTION

POS. 2

POS. 1

MOM. = Momentary

NO.

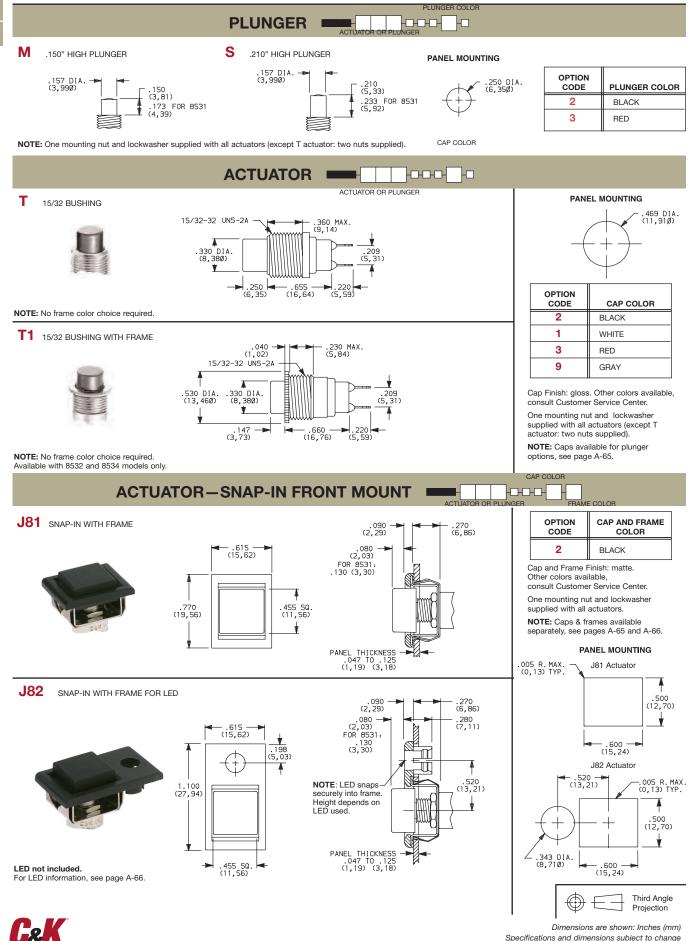
MODEL

All models with all options when ordered with G or Q contact material.

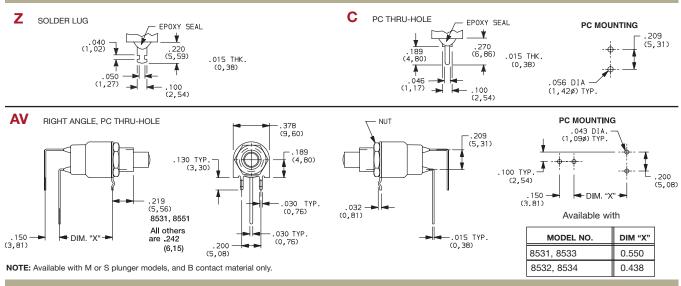




Pushbutton >



TERMINATIONS



CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	TERMINAL PLATING	CONTACT MATERIAL	RATINGS	
В	YES	YES	GOLD ¹	GOLD	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
Q	YES	YES	SILVER ⁴	SILVER 5	POWER	853X MODELS: 1 AMP @ 120 V AC OR 28 V DC. 855X MODELS: 3 AMPS @ 120 V AC OR 28 V DC.
G	YES	YES	GOLD OVER SILVER ²	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 V MAX @20 V AC OR DC MAX. OR 853X MODELS: 1 AMP @ 120 V AC OR 28 V DC. 855X MODELS: 3 AMPS @120 V AC OR 28 V DC.

* 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 CONTACTS: Coin silver, with gold plate over nickel plate.

³ TERMINALS: Copper alloy, with gold plate over nickel plate.

⁴ CONTACTS: Coin silver, silver plated.

⁵ TERMINALS: Copper alloy, silver plated

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

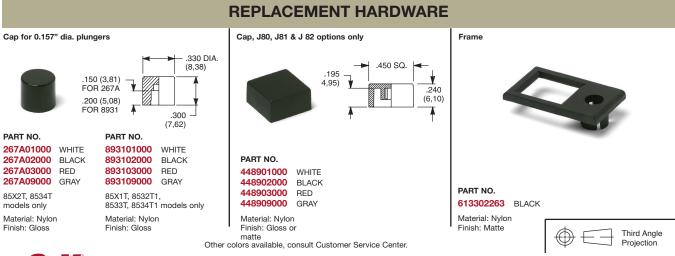
All models with all options when ordered with G or Q contact material. Q contact material standard with C, Z terminations.

8551 & 8552 available with Q contact material only

E EPOXY SEAL



SEAL



AVAILABLE HARDWARE

Frame

PART NO.

Material: Nylon Finish: Matte

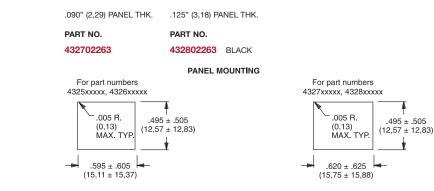


NOTE: Additional nuts, locking rings and lockwashers available separately, see section 'Technical Data and Additional Hardware' Other colors available, consult Customer Service Center.

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.





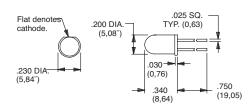




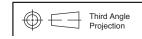
LED INFORMATION

Process Information: Soldering to LED leads must be completed within 5 seconds at 500°F (260°C) maximum.

LEDs are not supplied with J82 option. LED snaps into switch frame surrounding actuator and is wired externally.



Suggested LED for J82 option. Dimensions for reference only.



-2.K

Features/Benefits

- Reliable contact design
- Available with pretravel and overtravel
- **RoHS** compliant

LP_®

Models Available

Specifications

- CONTACT RATING: Q contact material (KM11, KM12 Models): 0.25 AMPS @ 125 V AC or DC (UL). See following pages for additional ratings.
- ELECTRICAL LIFE: 10,000 actuations min. at full load
- CONTACT RESISTANCE: Below 30 m
 typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts
- INSULATION RESISTANCE: $10^9\Omega$ min.
- DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level
- OPERATING TEMPERATURE: -30°C to 85°C
- CAP INSTALLATION FORCE: 10 lbs. max. permissible

NOTE: Any models supplied with Q or B 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

Typical Applications

- Alarm systems
- Computers
- Detector switch application





Materials

HOUSING & BUSHING: 6/6 nylon (UL94V-2), black

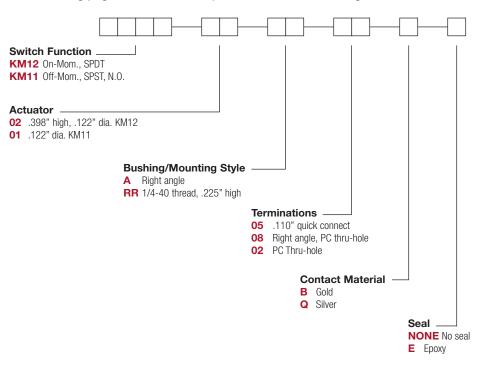
- ACTUATOR: 6/6 nylon (UL 94V-2), natural. Internal o-ring seal, available on KM11 models
- MOVABLE CONTACT: B contact material: Bronze or copper, with gold plate over nickel plate. See following pages for additional contact materials.
- STATIONARY CONTACTS & TERMINALS: B contact material: Copper, with gold plate over nickel plate. See following pages for additional contact materials.
- RETURN SPRING: Music wire, phosphor coated

MOUNTING NUT: Brass, nickel plated

TERMINAL SEAL: Epoxy

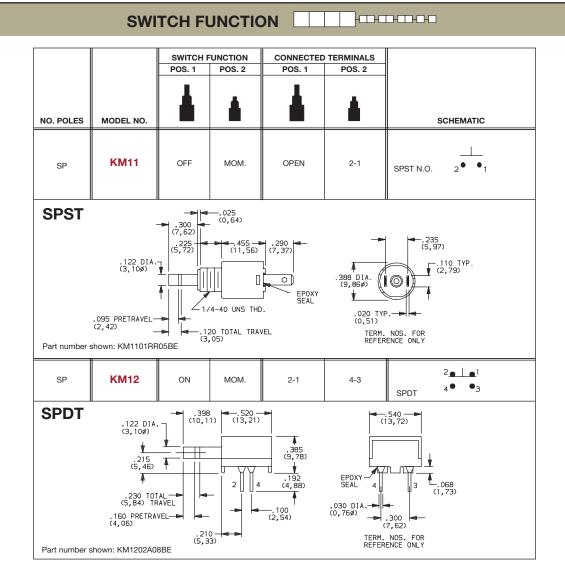
Build-A-Switch

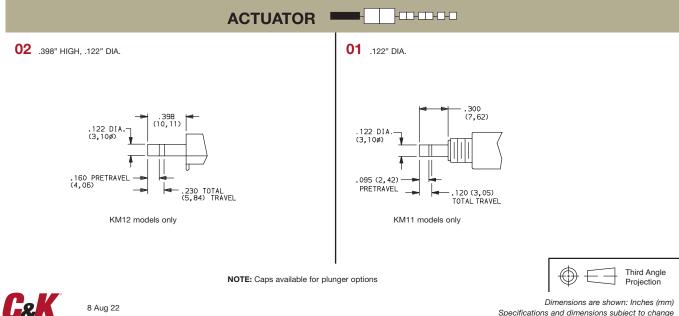
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on following pages. For additional options not shown in catalog, consult Customer Service Center.



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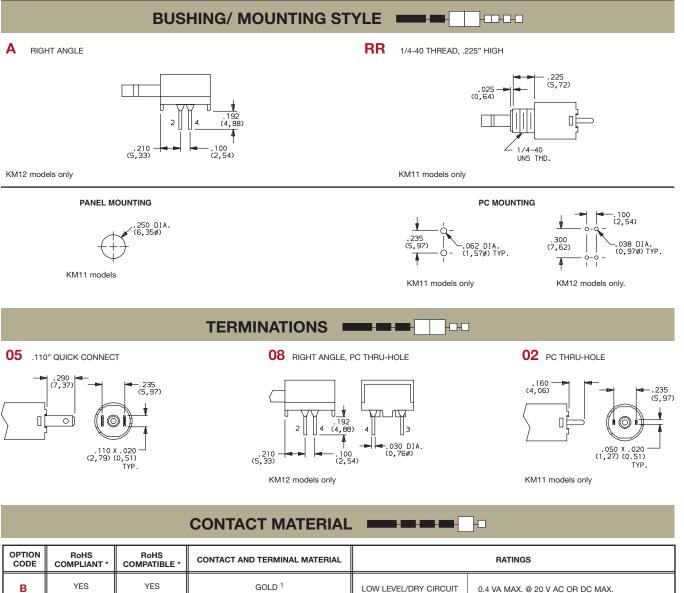




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Specifications and dimensions subject to change

A Pushbutton



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

SILVER²

¹ STATIONARY CONTACTS & TERMINALS: Copper, with gold plate over nickel plate. MOVABLE CONTACT: Phosphor bronze or beryllium copper, with gold plate over nickel plate.

YES

² STATIONARY CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options). MOVABLE CONTACT: Phosphor bronze or beryllium copper, silver plated.

MOVABLE CONTACT: Phosphor bronze or beryllium copper, silver plated. ³ STATIONARY CONTACTS & TERMINALS: Copper, with gold plate over nickel plate

YES

O

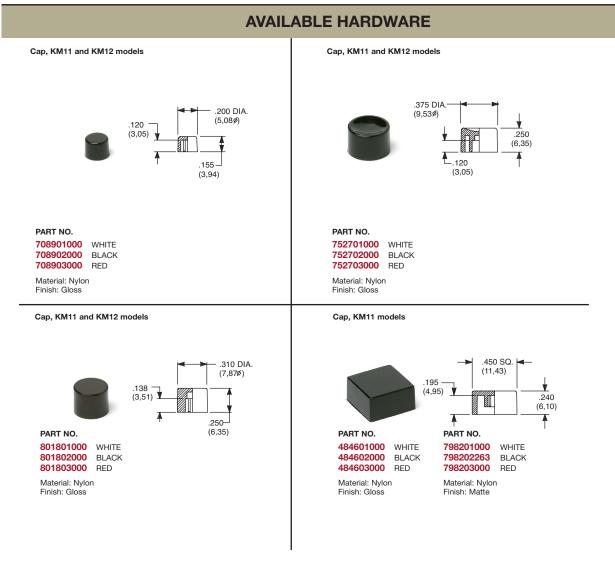
over silver plate. MOVABLE CONTACT: Phosphor bronze or beryllium copper, with gold plate over nickel plate over silver plate. NOTE: Any models supplied with Q or B contact material are RoHS compliant.

0.25 AMPS @ 125 V AC OR DC (KM11, KM12) (UL)

KM11, KM12 models N when ordered with 'Q' contact material.

POWER

NONE NO SEAL E EPOXY SEAL F EPOXY SEAL



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



8 Aug 22

-2

8600 Series Microminiature Pushbutton Switches

Features/Benefits

- Available with overtravel
- Normally closed models available
- Microminiature size ideal for applications where space is limited
- RoHS compliant



Models Available

Specifications

- CONTACT RATING: Q contact material (8631, 8632 Models): 500 mA @ 120 V AC or 28 V DC; 250 mA @ 250 V AC; (8633 Model): 250 mA @ 120 V AC or 28 V DC; 125 mA @ 250 V AC. See page A-73 for additional ratings.
- ELECTRICAL LIFE:
 - 8631 and 8633 MODELS: 250,000 actuations at full load. 8632 MODEL: 100,000 actuations at full load.
- CONTACT RESISTANCE: Below 30 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 109 Ω min.

DIELECTRIC STRENGTH: 500 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 65°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9.

Typical Applications

- Detection
- Telecommunications and networking equipment
- Computers and peripherals



Materials

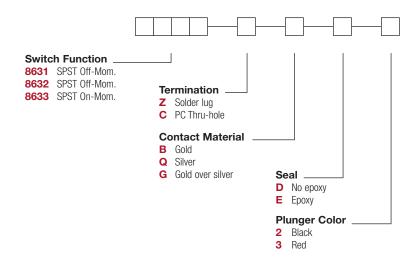
CASE: Glass filled phenolic or diallyl phthalate (DAP), (UL94V-0).
PLUNGER: Glass filled nylon (UL94V-0), black standard.
BUSHING: Brass, nickel plated.
CONTACTS: Q contact material: Coin silver, silver plated. See page A-73 for additional contact materials.
TERMINALS: 8631, 8632 MODELS: Copper alloy, silver plated. 8633 MODEL: Q contact material: Coin silver. See page A-73 for additional contact materials.
TERMINAL SEAL: 8633 MODEL: Epoxy. 8631, 8632 MODELS: Terminals insert molded.
HARDWARE: Nut: Brass, nickel plated.

NOTE: Any models supplied with Q, B 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.

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-72 and A-73. For additional options not shown in catalog, consult Customer Service Center.

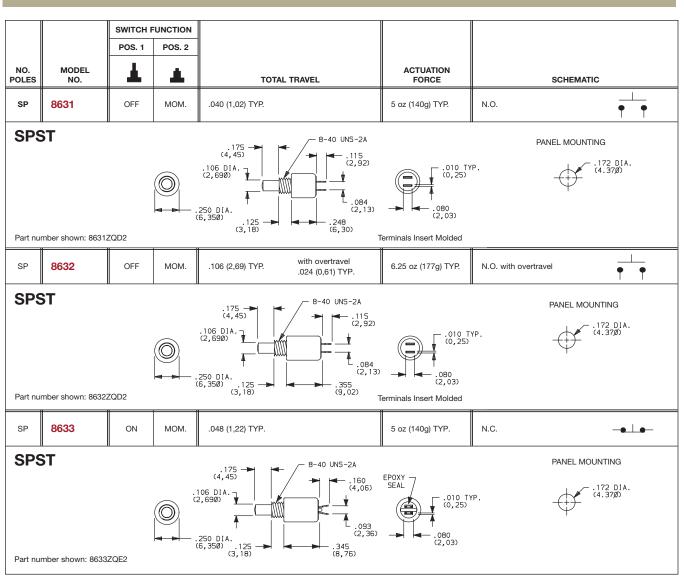




8600 Series Microminiature Pushbutton Switches

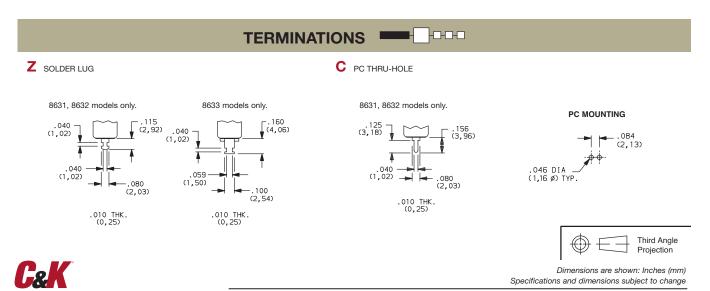
SWITCH FUNCTION

-0-0-0-0



MOM. = Momentary

NOTE: Caps available for plunger options, see page A-73.



8600 Series **Microminiature Pushbutton Switches**

OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	CONTACT MATERIAL	TERMINAL PLATING		RATINGS		
в	YES	YES	GOLD 1	GOLD ¹	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.		
Q	YES	YES YES S		SILVER 5	POWER	8631, 8632 MODELS: 500 mA @ 120 V AC OR 28 V DC; 250 mA @ 250 V AC. 8633 MODELS: 250 mA @ 120 V AC OR 28 V DC; 125 mA @ 250 V AC.		
G	YES	YES	GOLD OVER SILVER ⁴	GOLD ³	1 DRY CIRCUIT 0.4 VA MAX. @ 20 V AC OR DC MA 8 5 POWER 8631, 8632 MODELS: 500 mA @ 12 250 mA @ 250 V AC. 250 mA @ 250 V AC. 28 V DC; 125 mA @ 250 V AC. 28 V DC; 125 mA @ 250 V AC. 3 LOW LEVEL/DRY 0.4 VA MAX @ 20 V AC OR DC MAX mA @ 120 V AC OR 28 V DC; 250 m	0.4 VA MAX @ 20 V AC OR DC MAX. OR 8631, 8632 MODELS: 500 mA @ 120 V AC OR 28 V DC; 250 mA @ 250 V AC. 8633 MODELS: 250 mA @ 120 V AC OR 28 V DC; 125 mA @ 250 V AC.		

* 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 CONTACTS: Coin silver, with gold plate over nickel plate.

³ TERMINALS: Copper alloy, with gold plate over nickel plate. 8633 model only: Coin silver, with gold plate over nickel plate.

⁴ CONTACTS: Coin silver, silver plated.

⁵ TERMINALS: Copper alloy, silver plated. 8633 model only: coin silver.

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

8631, 8632 models R with all options when ordered with G or Q contact material. Q contact material standard with C, Z terminations.



PLUNGER COLOR

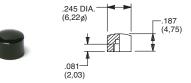
OPTION CODE	COLOR				
2	BLACK				
3	RED				

AVAILABLE HARDWARE

Cap

PART NO. 785101000 WHITE 785102000 BLACK 785103000 RED

Material: Nylon Finish: Gloss



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



Dimensions are shown: Inches (mm)

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Specifications and dimensions subject to change

Third Angle

Projection



CONTACT RATING: Q contact material: 1 AMP @

ELECTRICAL LIFE: 100,000 actuations at full load.

CONTACT RESISTANCE: Below 30 mΩ typ. Initial @

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

NOTE: Any models supplied with Q, or B contact material are RoHS compliant.

For information on specific and custom switches, consult Customer Service Cente

NOTE: Specifications and materials listed above are for switches with standard options.

120 V AC or 28 V DC. See page A-76 for additional ratings.

Features/Benefits

- Extended pre-travel or over-travel
- Heavy-duty brass plunger
- Long electrical life 100K cycles
- RoHS compliant

Typical Applications

- Telecommunications
- High end Instrumentation
- Medical & test equipment
- Detection

ushbutton >

Materials

CASE: Diallyl phthalate (DAP) (UL 94V-0). PLUNGER:

8731 – .39074" brass, nickel plated.

8732 - .390"74 PBT polyester, black.

BUSHING: brass, nickel plated.

CONTACTS: Q contact material: Coin silver, silver plated. See page A-76 for additional contact materials.

TERMINALS: Q contact material: Copper alloy, silver plated. See page A-76 for additional contact materials.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut: Brass, nickel plated; lockwasher: Steel, bright nickel plate. One mounting nut & lockwasher supplied with all switches.

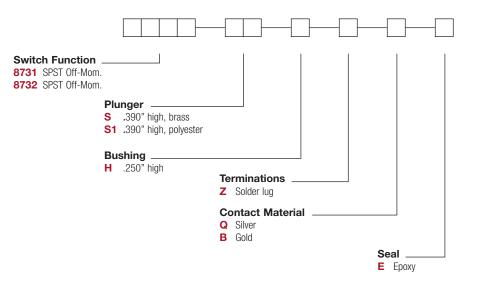
Build-A-Switch

2-4 V DC, 100 mA.

INSULATION RESISTANCE: $10^3\Omega$ min.

OPERATING TEMPERATURE: -30°C to 65°C.

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-75 and A-76. 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.

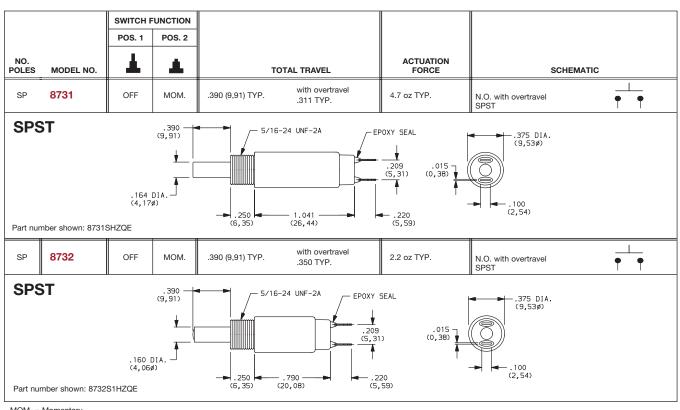


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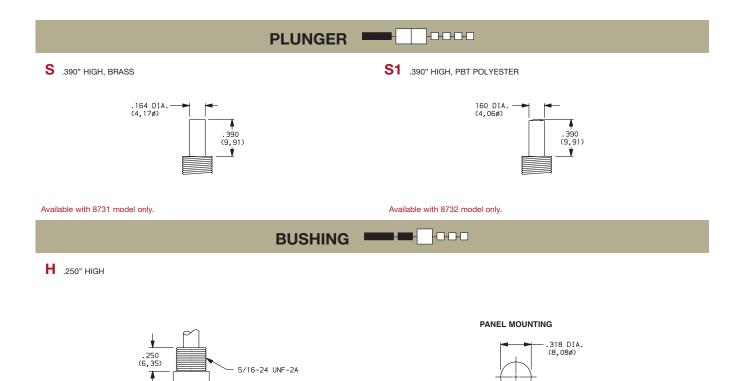
E

8700 Series Overtravel Pushbutton Switches

SWITCH FUNCTION



MOM. = Momentary



C&K

Dimensions are shown: Inches (mm) Specifications and dimensions subject to change www.ckswitches.com

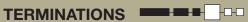
 \bigcirc

Third Angle

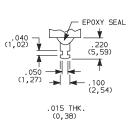
Projection

8700 Series Overtravel Pushbutton Switches





Pushbutton >



CONTACT MATERIAL

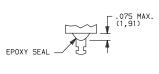
OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	CONTACT MATERIAL	TERMINAL PLATING	RATINGS				
Q	YES	YES	SILVER	SILVER	POWER	1 AMP @ 125 V AC OR 28 V DC.			
В	YES	YES	GOLD	GOLD	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.			

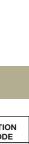
* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

NOTE: Any models supplied with Q, or B contact material are RoHS compliant.

SEAL

E EPOXY SEAL







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

C&K

Features/Benefits

- Ultraminiature design saves space
- Process compatible, withstands most soldering and washing processes
- Thru-hole and surface mount models available
- Sealed construction—internal o-ring and epoxy base

CONTACT RATING: 0.4 VA max. @ 20 V AC or DC max.

CONTACT RESISTANCE: Below 50 m_Ω typ. initial @

DIELECTRIC STRENGTH: 500 Vrms min. @ sea level.

SOLDERABILITY: Per MIL-STD-202F method 208D, or

EIA RS-186E method 9 (1 hour steam aging).

DEGREE OF PROTECTION: IP57; Protection against harmful dust

deposit, full-scale voltage protection, temporary immersion. PACKAGING: Surface mount switches standard in anti-static tape

and reel packaging per EIA 481-3, see page A-80 for drawings and reel information. Thru-Hole parts are shipped in trays.

MECHANICAL & ELECTRICAL LIFE: 40,000 make-and-break

RoHS compliant

cycles at full load.

2-4 V DC, 100 mA.

INSULATION RESISTANCE: $10^9\Omega$ min.

OPERATING TEMPERATURE: -40°C to 85°C.

All models are RoHS compliant and compliant.

Typical Applications

- Telecommunications and network equipment
- Computers and peripheral products
- Instrumentation
- Medical Applications



Pushbutto

Specifications

Materials

- HOUSING & BASE: Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0).
- ACTUATOR: Glass filled nylon 4/6, flame retardant (UL 94V-0) with standard internal o-ring seal.

SWITCH SUPPORT: Brass, tin plated.

- MOVABLE CONTACT: Copper alloy, with gold plate over nickel plate.
- STATIONARY CONTACTS Copper alloy, with gold plate over nickel plate.
- TERMINALS: Copper alloy, with gold flash over nickel plate.

TERMINAL SEAL: Epoxy/Urethane. All terminals insert molded.

NOTE: Any models supplied with B contact material are RoHS compliant and compatible.

NOTE: Materials listed above are general specifications. Specifications available for specific and custom switches, consult Customer Service Center.

CAUTION: PC mounting layouts and pads as shown are designed to be compatible with the latest equipment and reflow techniques. Care should be taken in the design and location of PC lands to suit individual needs. Orientation relative to reflow direction may significantly impact solder joint integrity.

How To Order

Part number list is shown below. For individual part details, please refer to the following pages.

Part Number (Part Description)	Product Details					
GP11MCBE	SPST Mom. PC Thru-hole, without support bracket					
GP12MCBE	SPDT Mom. PC Thru-hole, without support bracket					
GP11MABE	SPST Mom. PC Thru-hole, with vertical support bracket					
GP12MABE	SPDT Mom. PC Thru-hole, with vertical support bracket					
GP11MSABE	SPST Mom. SMT, with vertical support bracket					
GP12MSABE	SPDT Mom. SMT, with vertical support bracket					
GP11MSA1BE	SPST Mom. SMT, Half-Pitch, with vertical support bracket					
GP12MSA1BE	SPDT Mom. SMT, Half-Pitch, with vertical support bracket					
GP12MSCBE	SPDT Mom. SMT, without support bracket					
GP11MSV1BE	SPST Mom. SMT, with horizontal support bracket					
GP12MSV1BE	SPDT Mom. SMT, with horizontal support bracket					

MOM. = Momentary



.078 (1,98)

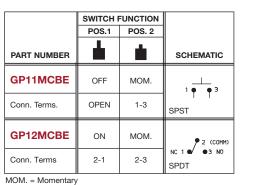
4

.020 TYP. (0,51) 1

040 (1,02)

.052 DIA. (1,32Ø)

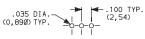
TOTAL TRAVEL



.177 (4,50) .163 (4,14) .228 (5,41) .130 TYP. .(3,30)

PC MOUNTING

GP11- omit center hole.





3

Terminal nos.

for reference only.

SEAL

.200

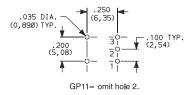
GP11MCBE

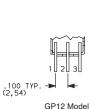
SPST

.276 (7,01)

.078 .276 (7,01) .260 (6,60) .040 (1,02) TOTAL TRAVEL .145 (3,68) SEAL ¥ .215 (5,46) φ 1 .052 DIA. (1,32Ø) Å .130 (3,30) TYP. .015 TYP. (0,38) .020 TYP. .030 .200 (5,08) **GP11MABE** .250 (6,35) SPST Terminal nos. for reference only.

PC MOUNT	NG
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	SWITCH F	UNCTION			
	POS.1	POS. 2			
PART NUMBER			SCHEMATIC		
GP11MABE	OFF	MOM.	1 - 3		
Conn. Terms.	OPEN	1-3	SPST		
GP12MABE	ON	MOM.	2 (COMM) NC 1 • 3 NO		
Conn. Terms.	2-1	2-3	SPDT		

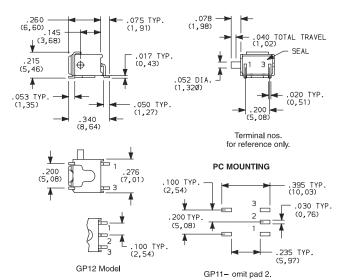
MOM. = Momentary



Pushbutton >

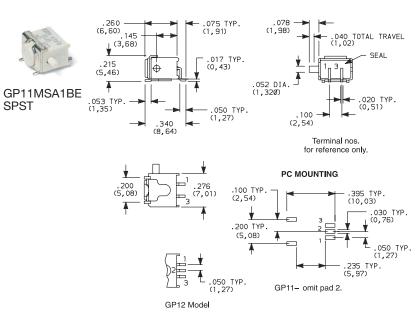






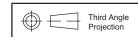
	SWITCH F	UNCTION	
	POS.1	POS. 2	
PART NUMBER			SCHEMATIC
GP11MSABE	OFF	MOM.	1 • • 3
Conn. Terms	OPEN	1-3	SPST
GP12MSABE	ON	MOM.	2 (COMM)
Conn. Terms	2-1	2-3	SPDT

MOM. = Momentary



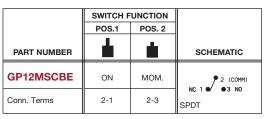
	SWITCH F	UNCTION	
	POS.1	POS. 2	
PART NUMBER			SCHEMATIC
GP11MSA1BE	OFF	MOM.	1 • • 3
Conn. Terms.	OPEN	1-3	SPST
GP12MSA1BE	ON	MOM.	2 (COMM) NC 1 • 3 NO
Conn. Terms	2-1	2-3	SPDT

MOM. = Momentary



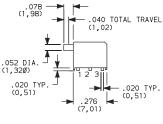
www.ckswitches.com





MOM. = Momentary



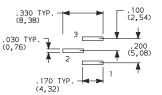


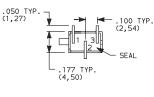
Terminal nos. for reference only.



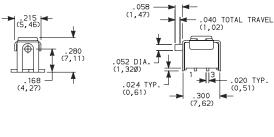
GP12MSCBE SPDT

PC MOUNTING





NOTE: Recommended for infrequent use applications only For increased switch mounting strength, order, SV1 termination style with support bracket (see below).

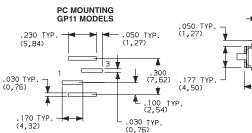




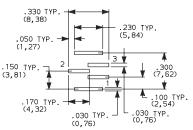
GP11MSV1BE SPST

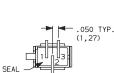
	SWITCH F	UNCTION	
	POS.1	POS. 2	
PART NUMBER			SCHEMATIC
GP11MSV1BE	OFF	MOM.	1 • • 3
Conn. Terms.	OPEN	1-3	SPST
GP12MSV1BE	ON	MOM.	2 (COMM) NC 1 9 3 NO
Conn. Terms.	2-1	2-3	SPDT

MOM. = Momentary



PC MOUNTING GP12 Models





+.315 ► (8,00) .100 (2,54)

¥

.215 (5,46)

Ā

GP12 Model

Terminal nos. for reference only.



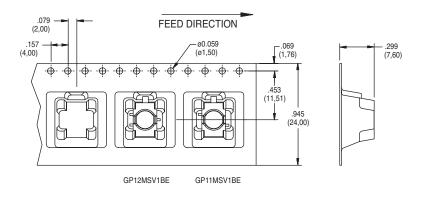


Dimensions are shown: Inches (mm) Specifications and dimensions subject to change

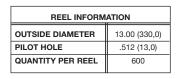
TAPE & REEL

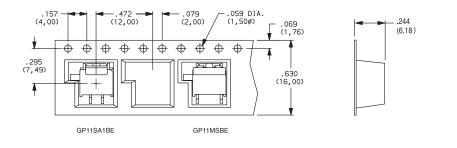
For part numbers GP11MSV1BE, GP12MSV1BE

REEL INFORMATION						
OUTSIDE DIAMETER	13.00 (330,0)					
PILOT HOLE	.512 (13,0)					
QUANTITY PER REEL	600					



For part numbers GPXXSA1BE, GPXXMSABE





FEED DIRECTION

For part numbers GP12MSCBE

REEL INFORMATION

13.00 (330,0)

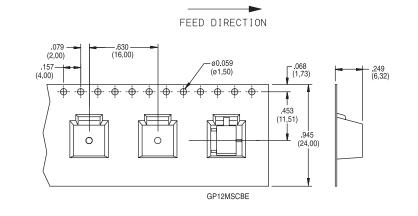
.512 (13,0)

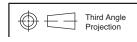
600

OUTSIDE DIAMETER

QUANTITY PER REEL

PILOT HOLE





C&K

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

PN Series Alternate & Momentary Action Pushbutton Switches

Features/Benefits

- Momentary or locking action
- Different actuation forces for customized feel
- Low cost, reliable contact design
- Single and double pole options
- RoHS compliant

Specifications

Typical Applications

- Computers and peripherals
- Instrumentation and measurement equipment
- Non-power, on-off switch applications



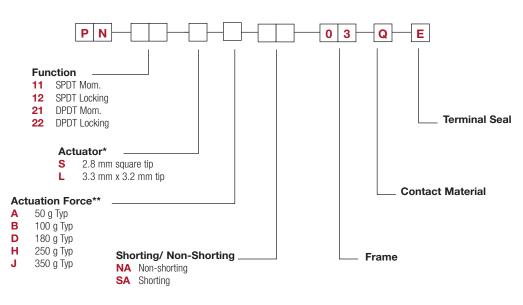
CONTACT RATING: 0.2 AMP @ 30 V DC max.	FR
ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.	AC
MECHANICAL LIFE: 10,000 on/off cycles.	BA
CONTACT RESISTANCE: 30 m Ω max. initial	TE
INSULATION RESISTANCE: 100 MΩ min.	M
DIELECTRIC STRENGTH: 500 V AC min.	RE
OPERATING/STORAGE TEMPERATURES: -10°C to 60°C.	DE
PACKAGING: Switches are supplied in anti-static trays.	DE

Materials

FRAME: Tin plated steel. ACTUATOR: PA 66 black. BASE: Phenolic resin. TERMINALS: Silver plated brass. MOVABLE CONTACTS: Silver plated phosphor bronze. RETURN SPRING: SWC DETENT SPRING: Phosphor bronze. DETENT SPRING PLATE: Phosphor bronze. RETURN SPRING RETAINER RING: Nickel plated steel. TERMINAL SEAL: Epoxy.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.



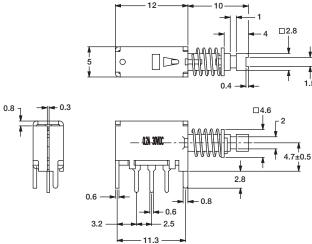
* "L" actuator is available for PN 21 & PN 22 options only

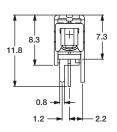
** Actuation Force "A" is available with PN11 on "S" actuator only PN 11 & PN 21 are available with Acuation Force "B", "D", "H", "J" PN 12 & PN 22 are available with Actuation Force "D", "H", "J"



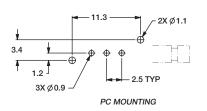
PN 11 SPDT Mom. PN 12 SPDT Locking

Pushbutton >

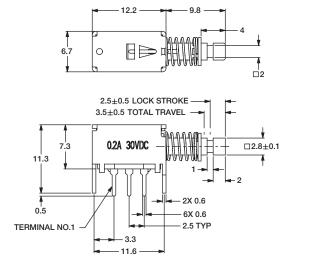


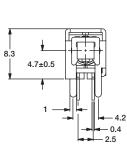


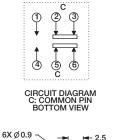
1.5

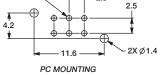














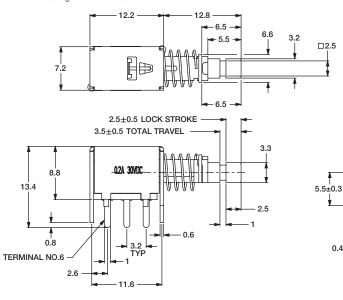


23 Jun 22

Dimensions are shown: mm Specifications and dimensions subject to change

PN Series Alternate & Momentary Action Pushbutton Switches

PN 21 DPDT Mom. with "L" Actuator DPDT Locking with "L" Actuator



BUTTONS MUST BE ORDERED SEPARATELY. SHIPPED IN BULK.

PE . 11 (.433) 12,1 13.7 (.59) — OPTION CODE COLOR RD Red

Gray

Black

White

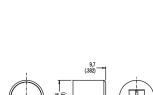


9.8

2.8

6.2

. 3



PC MOUNTING

C

CIRCUIT DIAGRAM C: COMMON PIN BOTTOM VIEW

3.2 TYP

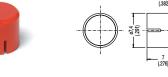
 \oplus

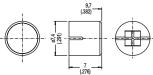
6 (5) 4

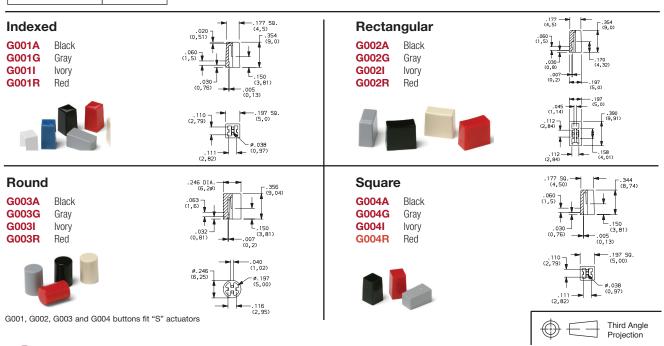
٩

Ø1.3 TYP

6.2







(.232

PE and PV buttons fit "L" actuators



GY

BK

WH

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

www.ckswitches.com

PHB Series Short Stroke Pushbutton Switches



Features/Benefits

- Momentary or latching action
- Low cost, reliable contact design
- 2 & 4 pole configurations
- Sealed contacts
- Optional buttons
- RoHS compliant

Typical Applications

- Computers and peripherals
- Instrumentation and measurement equipment
- Non-power, on-off switch applications

Specifications

RATING: 1 A @ 15 V DC

DIELECTRIC STRENGTH (50 Hz/1 min.): 500 V DC between terminals or between terminals and frame for 1 minute

OPERATING LIFE: 10,000 cycles at rated load

CONTACT RESISTANCE: 20 m Ωohms initial

INSULATION RESISTANCE: 100 M $\Omega ohms$

TOTAL TRAVEL/LATCHING TRAVEL: 2.5mm (± 0.5 mm) /

1.5mm (± 0.5 mm) to latch EE option (push-push) OPERATING FORCE:

2U option: 170 grams ± 100 grams (1.67 ± 0.98N) 4U option: 230 grams ± 100 grams (2.26 ± 0.98N)

OPERATING TEMPERATURE: -10°C to 60°C

BOUNCE TIME: ≤10 ms

SEALING: Sealed contacts.

PACKAGING: Switches; PHB2 models: 84 pcs per tray; PHB4 models 72 pcs per tray Optional Caps; Bulk bag - 100 caps per bag

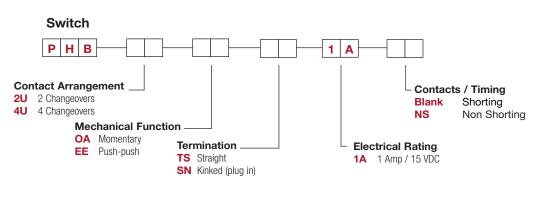
Materials

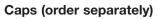
FIXED TERMINAL: Brass, silver plated MOVABLE CONTACT: Phosphor bronze, silver plated COVER: PA 66 Black COVER TO BASE RETAINING CLIP: POM ACTUATOR: POM RETURN SPRING: Stainless steel SPRING RETAINING RING: Steel, nickel plate BASE: Phenolic resin TERMINAL SEAL: Epoxy.

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. For additional options not shown in catalog, consult Customer Service Center.





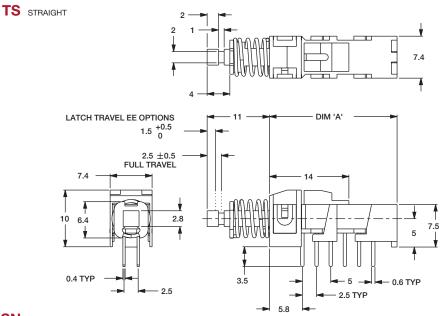


INDEXED	COLOR	RECTANGULAR	COLOR	ROUND	COLOR	ſ	SQUARE	COLOR
G001A	BLACK	G002A	BLACK	G003A	BLACK	F	G004A	BLACK
G001G	GRAY	G002G	GRAY	G003G	GRAY	ľ	G004G	GRAY
G0011	IVORY	G0021	IVORY	G0031	IVORY	ľ	G0041	IVORY
G001R	RED	G002R	RED	G003R	RED	ľ	G004R	RED

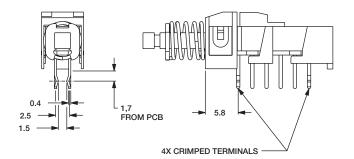


Dimensions are shown: Inches (mm) Specifications and dimensions subject to change

TERMINATION



SN KINKED (PLUG IN)



Ω

0 -

2X

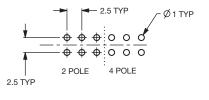
0- 2

4 POLE

- 1

O- 2

POLES	MODEL NO.	DIM 'A'	ACTION
4	PHB4UEE1A	22,5	PUSH/PUSH
4	PHB4U0A1A	22,5	MOMENTARY
0	PHB2UEE1A	15,0	PUSH/PUSH
2	PHB2U0A1A	15,0	MOMENTARY







0

0 -

 $\overline{}$

2 POLE

0-

0-

0- 2

- 1

PHB Series Short Stroke Pushbutton Switches

Pushbutton >

Indexed G001A G001G G001I G001R

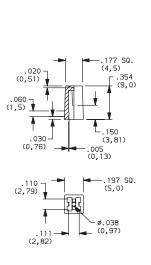
Black

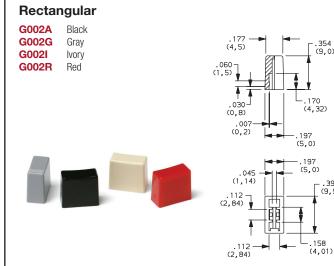
Gray

lvory

Red







Round

G003A Black G003G Gray G003I lvory G003R Red



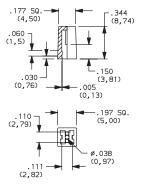
.246 DIA. (6,2ø) -.356 (9,04) .063 (1,6) ٧ Ā T. 150 .032 (0,81) (3,81) .007 (0,2) .040 (1,02) ø.246 (6,25) ø.197 (5,00) .116 (2,95)

Square

CAPS

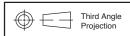
G004A Black G004G Gray G0041 lvory G004R Red





.354 (9,0)

.390 (9,91)



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

C&K

Features/Benefits

- Up to 10 poles per module
- Various contact terminals
- Various mounting & switch ganging configurations
- Mechanical indicator buttons
- RoHS compliant

Specifications

- SWITCHING POWER: F module max. AC/DC: Silver: 50 VA/15W, Gold: 1 VA/300 mW.
- SWITCHING VOLTAGE: F module max. AC/DC: Silver: 125/30V, Gold: 50/30 V.
- SWITCHING CURRENT: F module max. AC/DC: Silver: 0.5A/0.5A, Gold: 0.04A/0.01A.
- CARRYING CURRENT: Max at $\Delta u = 20^{\circ}$ C: Silver: < 2A, Gold: <0.5A.
- DIELECTRIC STRENGTH (50 Hz, 1 min.): Chassis/contact: ≥1500V Between contacts: ≥1500V.
- OPERATING LIFE "OA/EE" (24V/200mA): >10^5 operations "GR": >3.5 x 10^4 operations.
- CONTACT RESISTANCE: Initial: Typical ${\leq}10$ mΩ, max. 20 mΩ After operating life: ${\leq}100$ mΩ
- INSULATION RESISTANCE: ${\geq}10^9~\Omega$ between open contacts, ${\geq}10^9~\Omega$ between chassis and contacts.
- CAPACITANCE (at f = 10 kHz): \leq 0.7 pF between 2 contacts.
- TOTAL TRAVEL/LATCHING TRAVEL: 4.7mm/3.3mm (.185 inch/.130 inch).

All models and options are RoHS compliant and compatible.

NOTE: All models and options are RoHS compliant and compatible.

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

TYPICAL F OPERATING FORCE: 2U: 6.5N (650 grams); 4U: 6.5N (650 grams); 6U: 7.5N (750 grams); 8U: 9.0N (900 grams); 10U: 9.0N (900 grams).

EUROPEAN TYPICAL SF OPERATING FORCE:

2U: 3.5N±0.5N (350 grams±100 grams); 4U: 5N±1N (500 grams±100 grams); 6U: 6.5N±1N (650 grams±100 grams); 8U: 9.0N±1N (900 grams±100 grams).

OPERATING TEMPERATURE RANGE: -40°C to 70°C.

Materials

Typical Applications

Digital equipment interface

Medical equipment interface

Audio selection

HOUSING: Polycarbonate UL 94V-0 or polyester UL 94V-0.

ACTUATOR: Polyester UL 94V-0.

- MOVABLE CONTACTS: Bimetal brass, silver plated, gold plate over nickel.
- STATIONARY CONTACTS & TERMINALS: Brass, silver plated, gold plated.

TERMINAL BOARD: Polyester UL 94V-0.

RETURN SPRING: Music wire.

TERMINAL SEAL: RTV adhesive sealant.

CHASSIS: Steel.

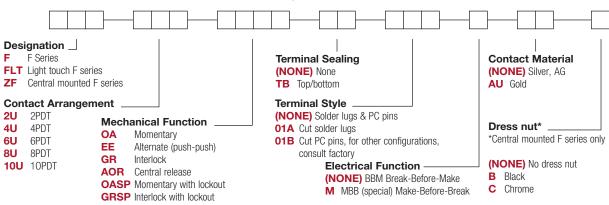
LOCKOUT PIN: Steel.

BLOCKERS: Steel.

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-88 thru A-95. For additional options not shown in catalog, consult Customer Service Center. If requesting only a switch, select either a North American or European switch as noted below. Chassis and buttons are sold separately. If multiple stations are selected, we will assume all switches are the same unless noted otherwise.

North American Order Code - Switch Only

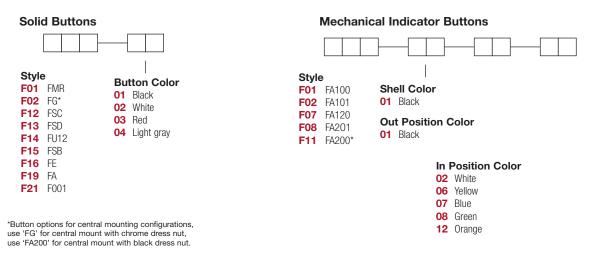






European Order Code - Switch Only Designation SF F Series **Terminal Style Contact Material ZF** Central mounted F series (NONE) Solder lugs & (NONE) Silver, AG P Gold PC pins **Contact Arrangement** LB Cut solder lugs **Dress nut*** 2U 2PDT PB Cut PC pins, for other **Mechanical Function** *Central mounted F series only **4U** 4PDT configurations, **OA** Momentary 6U 6PDT consult factory EE Alternate (push-push) (NONE) No dress nut 8U 8PDT **GR** Interlock **Electrical Function** В Black (NONE) BBM С Chrome *Minimum order quantities apply

Order Code - Buttons



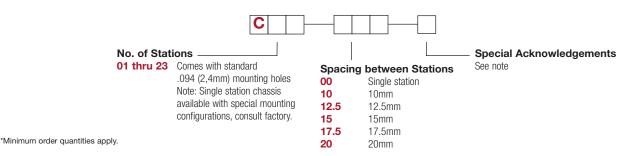
BUTTON REMOVAL

A button of a push-push switch should only be removed in the "OFF" non-latching position.

Order Code - Chassis

To order a switch with chassis, create the switch part number listed above and add the Chassis part number configurator information at the end of the part number.

Note: We do not guarantee or recommend interlocking beyond 10 stations.



A-89

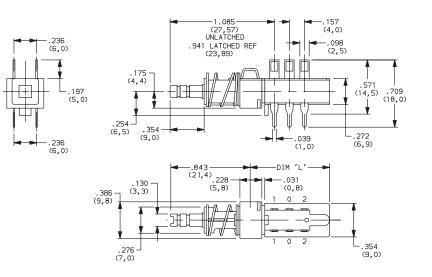


Specifications and dimensions subject to change

SWITCHES WITH STANDARD OPTIONS

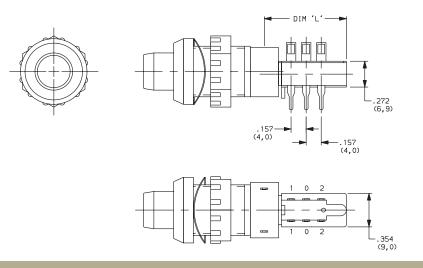
F2UEE

CONTACT ARRANGEMENT	LENGTH DIM 'L'
2U	0.827 (21,00)
4U	1.300 (33,00)
6U	1.770 (45,00)
8U	2.240 (57,00)
10U	2.720 (69,00)



ZF2UEEBF11010108

CONTACT ARRANGEMENT	LENGTH DIM 'L'
2U	0.827 (21,00)
4U	1.300 (33,00)
6U	1.770 (45,00)
8U	2.240 (57,00)
10U	2.720 (69,00)



DESIGNATION

Designation, North America

F F Series

C&K

FLT Light touch F series

ZF Central mounted F series

Designation, Europe

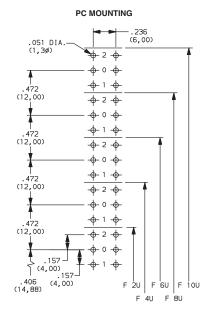
SF F Series

ZF Central mounted F series



Specifications and dimensions subject to change

OPTION CODE	NO. OF POLES	SCHEMATIC
2U	2PDT	
4U	4PDT	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
6U	6PDT	3X 1 0 0 0 3X 1 0 2 1 0 2
8U	8PDT	4X 1 0 0 0 4X 1 0 2 1 0 2
10U	10PDT	5X 1 0 0 0 5X 1 0 2 1 0 2



North America

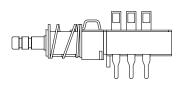
OPTION CODE	FUNCTION	
OA	Momentary	
EE	Alternate (push-push)	
GR	Interlock	
AOR	Central release	
OASP	Momentary with lockout	
GRSP	Interlock with lockout	

Europe

OPTION CODE	FUNCTION
OA	Momentary
EE	Alternate (push-push)
GR	Interlock

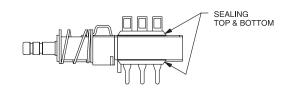
TERMINAL SEALING

(NONE) NO SEAL



F2UEE shown in example above.

ТВ ТОР & ВОТТОМ



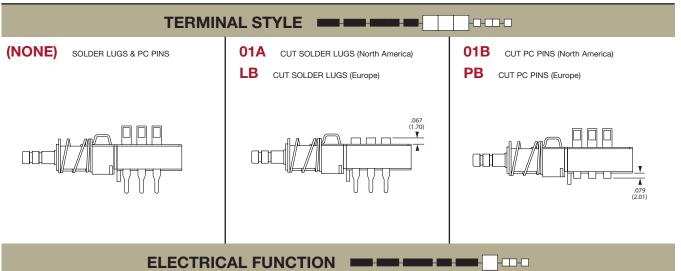
NOTE: Available for North America only



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

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Third Angle Projection

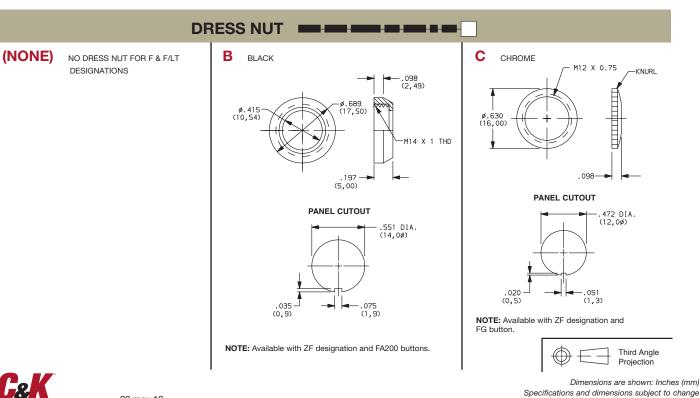


OPTION CODE	FUNCTION
(NONE)	BBM Non-shorting
м	MBB Shorting (North America only)

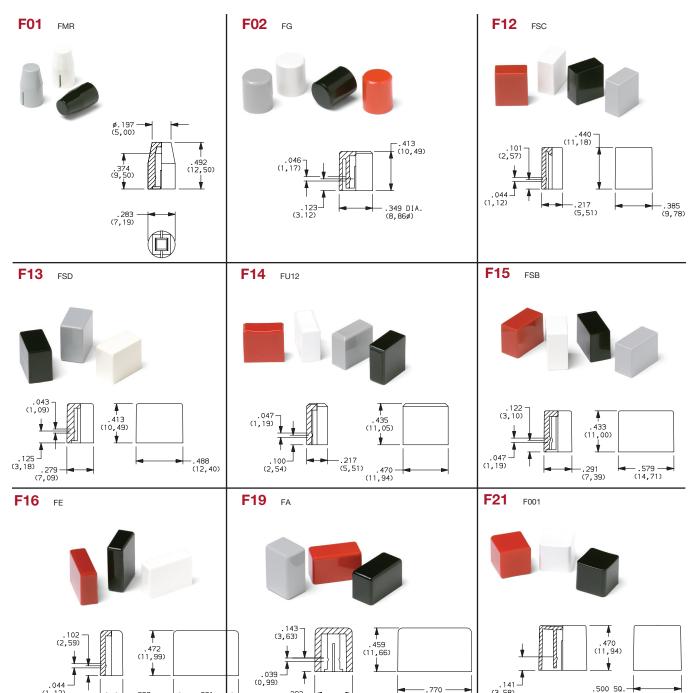
CONTACT MATERIAL

NORTH AMERICA OPTION CODE	EUROPE OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	MATERIAL	RATING
(NONE)	(NONE)	YES	YES	SILVER, AG	50 VA/15 W; 125/30 V; 0.5/0.5 A
AU	Р	YES	YES	GOLD	1 VA/300mW; 50/30 V; 0.04 A/0.01 A

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



F Series **Pushbutton Switches** Pushbutton > COLOF **SOLID BUTTON STYLE**



.044 (1,12)

.236 (5,99)

29 may 19

—.681 — (17,30)

.392 (9,96)

OPTION CODE

01

02

03

04

Dimensions are shown: Inches (mm)

.500 SQ. (12,70)

.141 (3,58)

-.770 -(19,56)

COLOR

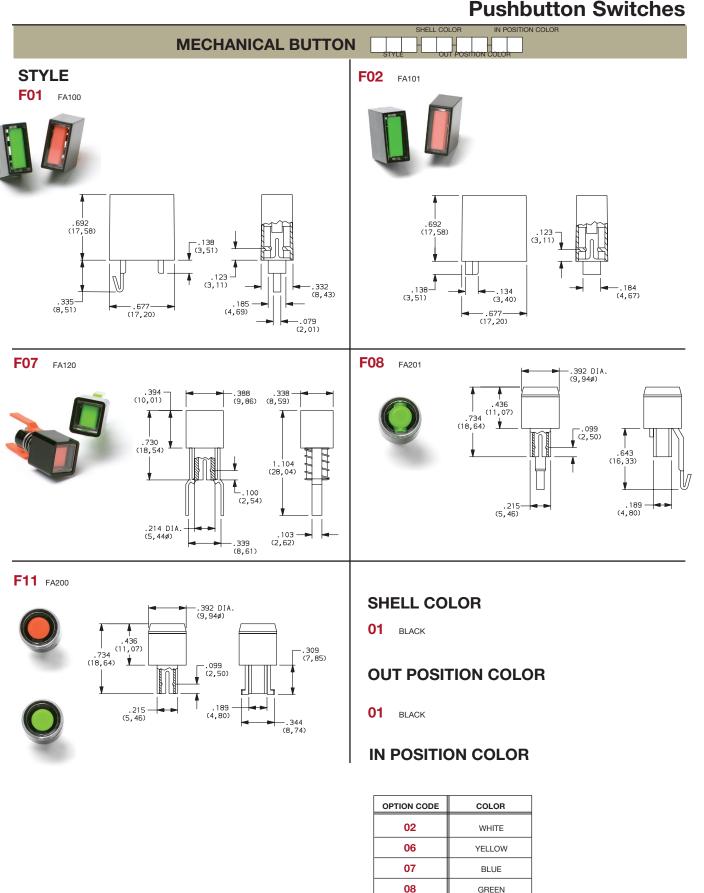
BLACK

WHITE

RED

LT. GRAY

Specifications and dimensions subject to change



C&K

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

12

ORANGE

CHASSIS

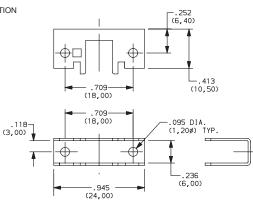
NUMBER OF STATIONS

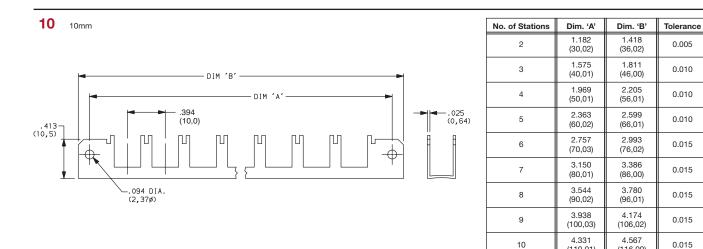
C00 Thru C10 Comes with standard 0.094 (2,44mm) mounting holes

NOTE: Single station chassis available with mounting configurations, consult factory.

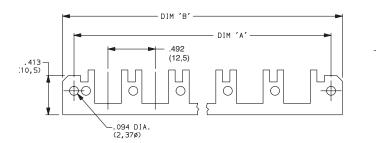
SPACING

00 SINGLE STATION





12.5 12.5mm



No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.200 (30,48)	1.436 (36,47)	0.005
3	1.692 (42,98)	1.928 (48,97)	0.010
4	2.184 (55,47)	2.420 (61,47)	0.010
5	2.676 (67,97)	2.912 (73,96)	0.010
6	3.169 (80,49)	3.405 (86,49)	0.015
7	3.661 (92,99)	3.897 (98,98)	0.015
8	4.153 (105,49)	4.389 (111,48)	0.015
9	4.645 (117,98)	4.881 (123,98)	0.015
10	5.137 (130,48)	5.373 (136,47)	0.015

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(110,01)

(116,00)

Third Angle

Projection

0.005

0.010

0.010

0.010

0.015

0.015

0.015

0.015

0.015

<u>Ce</u>K

29 may 19

.025 (0,64)

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

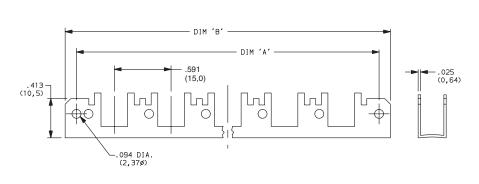
Pushbutton >

CHASSIS

SPACING

15mm

No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.374 (34,90)	1.615 (41,02)	0.005
3	1.969 (50,01)	2.205 (56,01)	0.010
4	2.560 (65,02)	2.796 (71,02)	0.010
5	3.150 (80,01)	3.386 (86,00)	0.010
6	3.741 (95,02)	3.977 (101,02)	0.015
7	4.332 (110,03)	4.568 (116,03)	0.015
8	4.922 (125,02)	5.158 (131,01)	0.015
9	5.513 (140,03)	5.749 (146,02)	0.015
10	6.103 (155,02)	6.339 (161,01)	0.015



17.5 17.5mm

No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance	
2	1.477 (37,52)	1.713 (43,51)	0.005	
3	2.166 (55,02)	2.402 (61,01)	0.010	DIM 'B'
4	2.855 (75,52)	3.091 (78.51)	0.010	.413¬ DIM 'A'
5	3.544 (90,02)	3.780 (96,01)	0.010	
6	4.233 (107,52)	4.469 (113,51)	0.015	
7	4.922 (125,02)	5.158 (131,01)	0.015	♥
8	5.611 (142,52)	5.847 (148.51)	0.015	(2,37ø)
9	6.300 (160,02)	6.536 (166,01)	0.015	
10	6.989 (177,52)	7.225 (183,52)	0.015	



No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance	
2	1.575 (40,01)	1.811 (46,00)	0.005	
3	2.363 (60,02)	2.599 (66,01)	0.010	DIM 'B' —
4	3.150 (80,01)	3.386 (86,00)	0.010	
5	3.938 (100,03)	4.174 (106,02)	0.010	
6	4.725 (120,02)	4.961 (126,01)	0.015	
7	5.512 (140,00)	5.748 (146,00)	0.015	
8	6.300 (160,02)	6.536 (166,01)	0.015	L.413 (10,5)
9	7.087 (180,01)	7.323 (186,00)	0.015	↓ .094 DIA. (2, 37ø)
10	7.875 (200,03)	8.111 (206,02)	0.015	
				Third Angle Projection
C.e.K	•			Dimensions are shown: Inche



Specifications and dimensions subject to change

Features/Benefits

- Chassis or panel mount
- Various buttons

ushbutton >

- Various contact configurations
- RoHS compliant

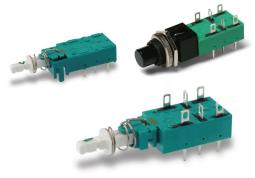
UL61058-1 Wills #15

Specifications

ELECTRICAL RATING: NE18 Series: 8A GP, 125 VAC, 50/60 Hz, 1E4, T70 6A GP, 250 VAC, 50/60 Hz, 1E4, T70 6(4)A RM, 250 VAC, 50/60 Hz, 1E4, T70 6/48A RC, 250 VAC, 50/60 Hz, 1E4, T70 1RA, 100 VDC, 1E4, T70 8RA, 30VDC, 1E4, T70 NE18CTII Series: 4A GP, 250 VAC, 50/60 Hz, 1E4, T70 4/48A RC, 250 VAC, 50/60 Hz, 1E4, T70 1RA, 100 VDC, 1E4, T70 4RA, 30VDC, 1E4, T70 DIELECTRIC STRENGTH (50 Hz, 1 min.): 2000 V OPERATING LIFE AT MAX. LOAD AND AT MAX. INRUSH CURRENT: ^10⁴ operations⁵) CONTACT RESISTANCE: Initial: $50m\Omega$; After 10^4 operations: $70m\Omega$. INSULATION RESISTANCE: ^10¹² Ωchassis – nearest contact; ^10¹² Ωmains contact – mains contact; ^10¹² Ωmains contact – mains contact after 10⁴ operations. LOW VOLTAGE CONTACT: SWITCHING POWER MAX .: 12W SWITCHING VOLTAGE MAX .: 24V

Typical Applications

- Mains/power switching
- Consumer electronics
- Audio equipment
- Digital products



SWITCHING CURRENT MAX.: 0.5A TOTAL TRAVEL: 4.7mm (.185 inch) LATCHING TRAVEL: 3.3mm (.130 inch) OPERATING FORCE: Without auxiliary low voltage contacts: NE18: 7N (700 grams); NE18CTII: 9.5N (950 grams). With auxiliary low voltage contacts: NE18: 8N (800 grams). SEALING: Dust proof.

Materials

HOUSING, ACTUATOR & TERMINAL BOARD: Thermoplastic polyester (UL 94V-0).

MOVABLE CONTACT: Silver nickel alloy, silver plated.

FIXED CONTACTS: Silver nickel alloy, silver plated.

COMMON CONTACTS & TERMINALS: Copper alloy, silver plated. RETURN SPRING: Music wire.

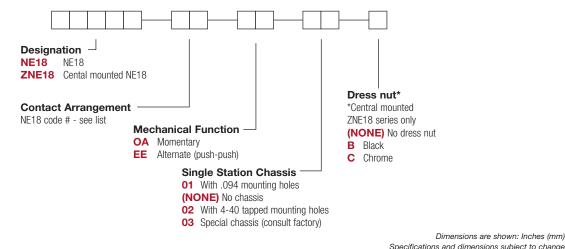
NOTE: All models arer RoHS compliant and compatible.

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

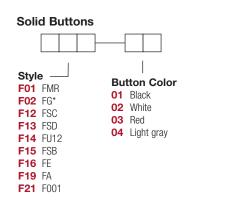
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-97 thru A-104. For additional options not shown in catalog, consult Customer Service Center.

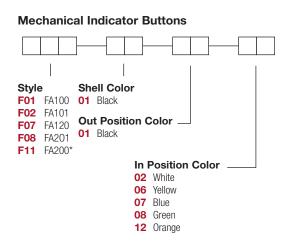
If requesting only a switch, select the switch as noted below. Buttons are sold separately.





Order Code - Buttons





*Button options for central mounting configurations, use 'FG' for central mount with chrome dress nut, use 'FA200' for central mount with black dress nut.

BUTTON REMOVAL

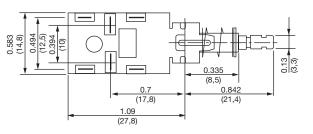
A button of a push-push switch should only be removed in the "OFF" non-latching position.

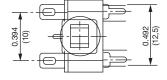
DESIGNATION & SWITCHES WITH STANDARD OPTIONS

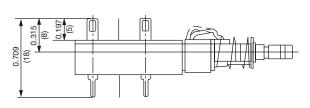
NE1838EE

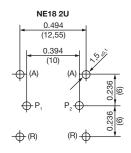
C.2.













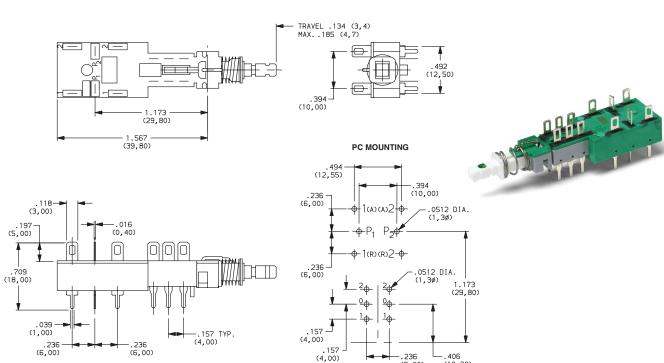
Dimensions are shown: Inches (mm) Specifications and dimensions subject to change

DESIGNATION & SWITCHES WITH STANDARD OPTIONS

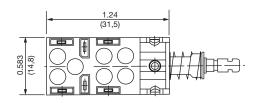
NE1839EE

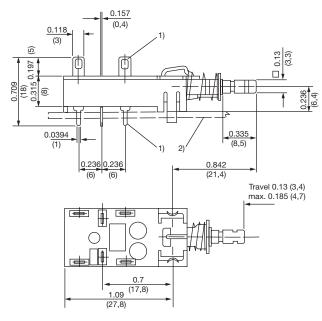
 \square

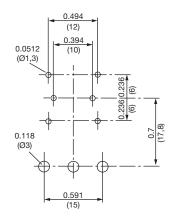
Pushbutton >



NE1846EE







.406

-.236 (6,00)

Third Angle \bigcirc Projection Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

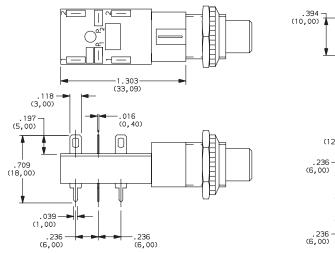


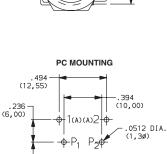
DESIGNATION & SWITCHES WITH STANDARD OPTIONS

. 492

ZNE1838EECF0201







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

CONTACT ARRANGEMENT

OPTION CODE Contact capacity and availability	STYLE	ELECTRICAL CIRCUIT
37	NE18 — 2AX	DPST
38	NE18 — 2UX	DPDT
51	2U + NE18 — 2AX	DPST*
52 (4A/64)	NE18CTII — 2AX	DPST
39	2U + NE18 — 2UX	DPDT*
41	NE18 — 2AP	DPST
42	NE18 — 2UP	DPDT
43	NE18 — 2AW	DPST
44	NE18 — 2UW	DPDT
45	NE18 — 2ASX	DPST

2U + Denotes auxiliary set of low current contacts DPDT 2A = DPST 2U = DPDT

S = Snap-in mounting X = Solder lug/PC pins W = Solder lugs only P = PC pins only

OPTION CODE Contact capacity and availability	STYLE	ELECTRICAL CIRCUIT
46	NE18 — 2USX	DPDT
47	NE18 – 2ASP	DPST
48	NE18 - 2USP	DPDT
49	NE18 — 2ASW	DPST
50	NE18 — 2USW	DPDT
54	2U + NE18 — 2AW	DPST
55	2U + NE18 — 2AP	DPST
56	2U + NE18 — 2UW	DPDT
57	2U + NE18 — 2UP	DPDT

NOTES

Contact plating is silver on all Power Switches.
 The electrical function is Break Before Make (BBM) on all Power Switches.

3. The terminals will be epoxy sealed.

	POSSIBLE CONTAC	CT ARRANGEMENT			
TYPE	POWER CONTACTS ¹	AUXILIARY CONTACTS	CONTACT SPACING	PROTECTION CLASS (CEE 24)	APPROVALS
NE18	2A ²	2U	> 3mm (.118 inch)	II	c A us 15 UL61058-1
NE18	2A ² 2U	2U	> 3mm (.118 inch)	I	c Al us UL61058-1
NE18CTII	2A ²		> 3mm (.118 inch)	II	c AU us UL61058-1

1) A = make contact, U = changeover contact

2) With 2A mains contacts: Mounting only by PC pins is not sufficient.

MECHANICAL FUNCTION ----

OPTION CODE	FUNCTION
OA	Momentary
EE	Alternate (push-push)



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

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Third Angle

Projection

7-0

LHIILL ► A Pushbutton

SINGLE STATION CHASSIS

(NONE) NO CHASSIS

02 WITH 4-40 TAPPED MOUNTING HOLES

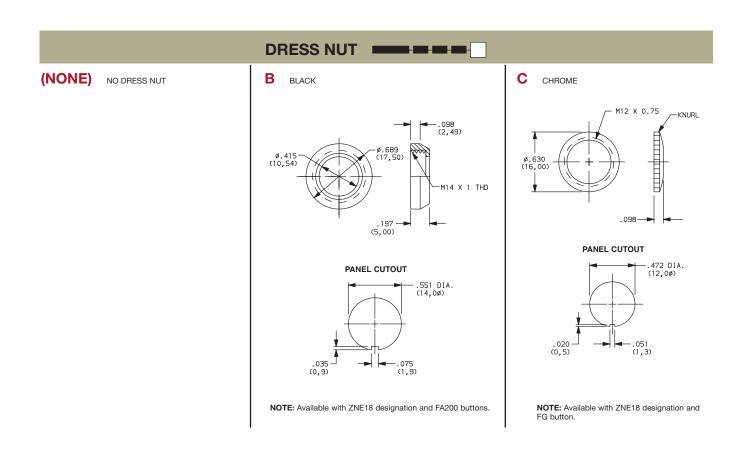
03 SPECIAL CHASSIS (CONSULT FACTORY)

WITH .094 MOUNTING HOLES

01

.118-

7



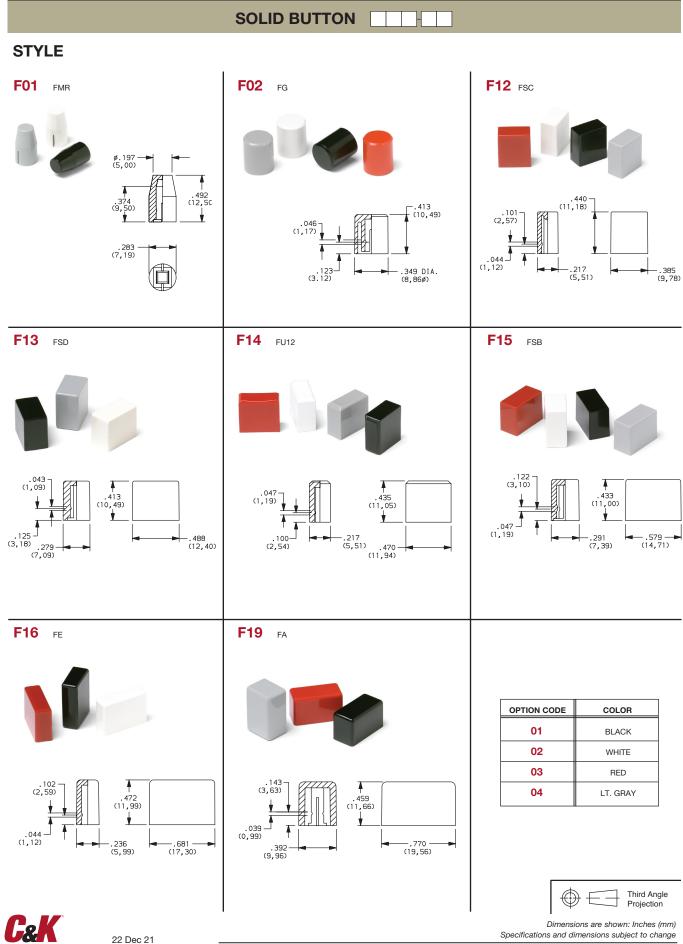


Dimensions are shown: Inches (mm) Specifications and dimensions subject to change

C.e.K



Pushbutton >



22 Dec 21

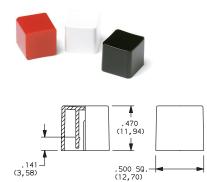
www.ckswitches.com

Specifications and dimensions subject to change

SOLID BUTTON

STYLE

F21 F001



OPTION CODE	COLOR
01	BLACK
02	WHITE
03	RED
04	LT. GRAY
09	BLACK/CHROME (F03,F06 & F07 buttons only

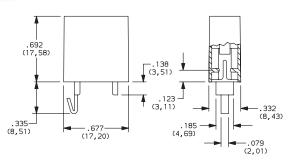
IN POSITION COLOR

MECHANICAL BUTTON

STYLE

F01 FA100

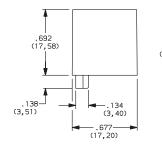


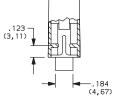


F02 FA101



SHELL COLOR







C&K

22 Dec 21

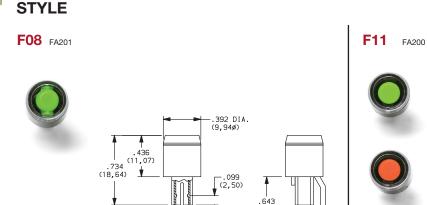
Dimensions are shown: Inches (mm) Specifications and dimensions subject to change **MECHANICAL BUTTON**

.643 (16,33)

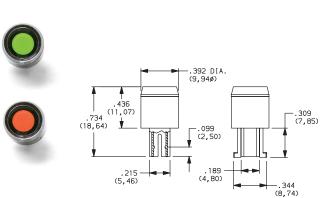
.189 (4,80)

 $\sqrt{}$

A



.215 (5,46)



IN POSITION COLOR

SHELL COLOR

01 BLACK

OUT POSITION COLOR

01 BLACK

IN POSITION COLOR

SHELL COLOR

OPTION CODE	COLOR
02	WHITE
06	YELLOW
07	BLUE
08	GREEN
12	ORANGE



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

<u>Ce</u>K



Features/Benefits

- Ultra-miniature pushbutton
- Multiple poles and throws
- Long life 100,000 cycles
- Vertical and right angle mount
- Sealed against soldering and cleaning processes
- Optional caps
- RoHS compliant

Typical Applications

- Networking equipment
- High-end consumer

Data storage

- Professional instrumentation
- Computer, Server, Modem &

Materials

MOVABLE CONTACTS:

Base metal: Brass

FIXED CONTACTS:

COVER: PA66 - Black

BASE: PPS - Black

ACTUATOR: PPS - Black

Base metal: Phosphor bronze

Plating: Gold over nickel plate

Plating: Gold over nickel plate

SUPPORT BRACKET: Steel with tin plate

(A1 type terminal only)

AL



Specifications

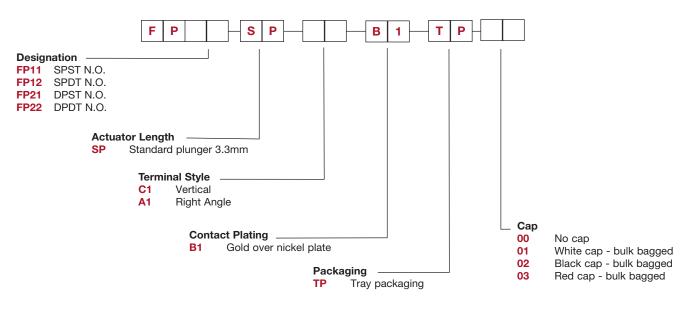
CONTACT RATING: Max. 0.4 VA (28 V DC or V AC) ELECTRICAL LIFE: 50,000 cycles (FP11 & FP21) 10,000 cycles (FP12 & FP22) CONTACT RESISTANCE: (10mA @ 2 V DC) 80 mΩ max. initial INSULATION RESISTANCE: 500MΩ min. @ 500 V DC - 1 minute OPERATING TEMPERATURE: -20°C to 80°C SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 PACKAGING: Tray pack - 25 pcs per tray (A1 type terminal)

- 100 pcs per tray (C1 type terminal) Caps (optional) - Bulk bag; 100 caps per bag.

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

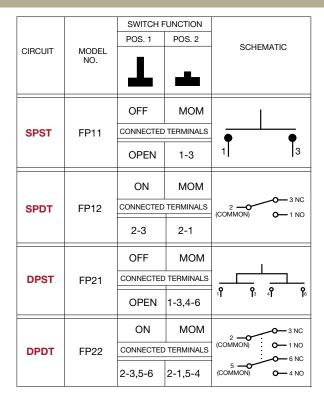
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-106 thru A-107. For additional options not shown in catalog, consult Customer Service Center.



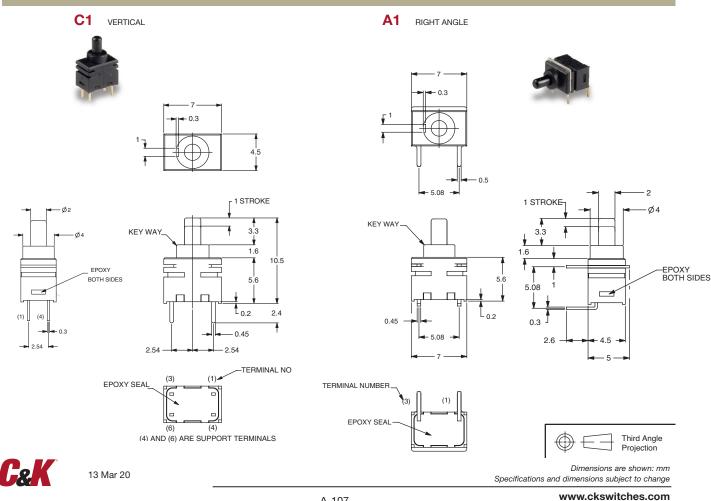




SWITCH CIRCUIT



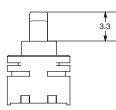
TERMINAL STYLE





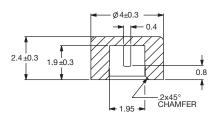
ACTUATOR LENGTH

SP STANDARD PLUNGER 3.3MM



CAPS

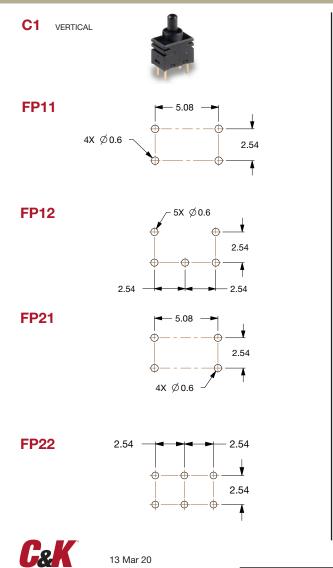
OPTION CODE	DESCRIPTION
00	NO CAP
01	WHITE CAP, BULK BAGGED
02	BLACK CAP, BULK BAGGED
03	RED CAP, BULK BAGGED

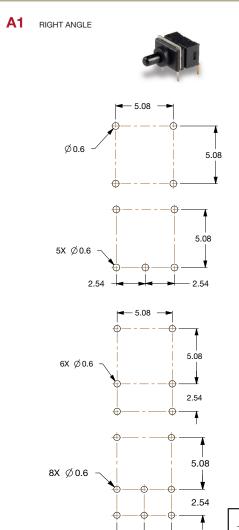


To purchase Caps separately without switch, please use these part numbers

COLOR
WHITE
BLACK
RED

MOUNTING HOLE







Third Angle Projection

2.54

Features/Benefits

- IP67 sealed
- 1,000,000 life cycle
- Illumination / non-illumination
- Multiple colored caps
- Threaded or snap-in mounting
- Caps available separately
- RoHS compliant

Specifications

FUNCTION: SPST Momentary CONTACT ARRANGEMENT: N.O. MOUNTING TYPE: Snap-in (no panel seal) Threaded body (hex nut, lock washer, and panel seal gasket provided) Torque spec for threaded body: Do not exceed 8-9 in-lbs (0.9-1.0 N.m)

Mechanical

OPERATING LIFE: 1,000,000 cycles TOTAL TRAVEL: 2.1 ± 0.2 mm

OPERATING POINT 1.55 ± 0.25 mm

OVER TRAVEL: 0.6 min.

OPERATING FORCE: $4N \pm 1N$ standard configuration; other force option $2N \pm 0.5N$

VIBRATION: 10-500 Hz 10g Max SHOCK: 60g 11ms sawtooth wave

Electrical

CONTACT RATING: 200mA @ 24 V DC resistive (500,000 cycles) 100mA @ 50 V DC resistive (500,000 cycles) 400mA @ 32 V AC resistive (500,000 cycles) 125mA @ 125 V AC resistive (1,000,000 cycles)

DIELECTRIC STRENGTH: 1000 V AC min. INSULATION RESISTANCE: 1 G Ω @ 500 VDC INITIAL CONTACT RESISTANCE 50 m Ω max (without wire leads) BOUNCE TIME: <5 ms

Typical Applications

- Harsh environments
- Off-Road
- Industrial
- Medical
- Transportation
- Joystick control modules
- Gaming
- Military



Materials HOUSING: PBT BASE: PBT CAP: PBT ACTUATOR: Illuminated: Clear polycarbonate Non-illuminated: PBT INTERNAL SEAL: Silicone rubber TERMINALS: Copper alloy, gold over silver plating MOVABLE CONTACT: Copper alloy, gold over silver plating TERMINAL SEAL: Epoxy WIRE LEADS: UL1569 Black 22 AWG

Operating Environment

OPERATING TEMPERATURE: -40°C to 85°C (+105°C non-illuminated) ESD PROTECTION: 20 KV min.

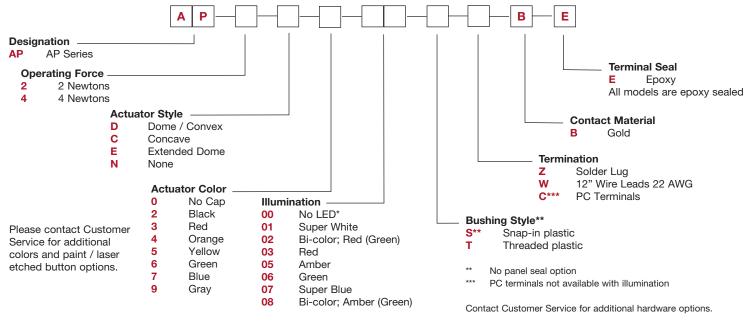
Process Environment

SEALING: IP67 for threaded body IP65 for snap-in version (no panel seal)

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

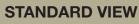
Build-A-Switch

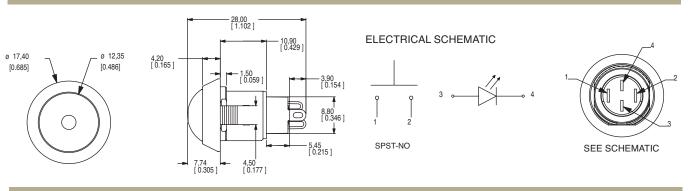
To order, simply select desired option from each category and place in the appropriate box.



* No LED available in short body only

A Pushbutton



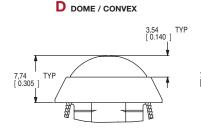


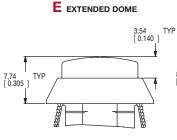
OPERATING FORCE

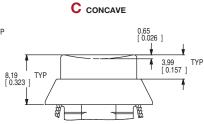
$\neg \circ \circ \cdots \circ \circ \circ \circ \circ$

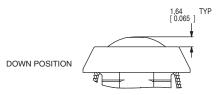
OPTION CODE	OPERATING FORCE
2	2 N, 200 g
4	4 N, 400 g

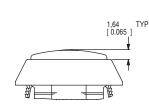
ACTUATOR STYLE

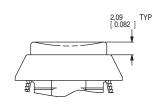












ACTUATOR COLOR

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OPTION CODE	ACTUATOR COLOR	
0	No Cap	
2	Black	
3	Red	
4	Orange	
5	Yellow	
6	Green	
7	Blue	
9	Gray	

For additional colors please contact Customer Service.



<u>Ce</u>K 28 Jul 21

ILLUMINATION 70000

OPTION CODE	ILLUMINATION TYPE	TYPICAL I MIN	NTENSITY* MAX	PEAK WAVELENGTH	Vf Forward Voltage
		(m	cd)	(nm)	
00	Model without illumination	N	/A	N/A	
01	LED Super White	4,000	5,000	N/A	3.5
02	LED Bi-Color – Red (Green)	10	20	635/565	2.0
03	LED Red	4	8	700	2.0
05	LED Amber	35	50	610	2.0
06	LED Green	35	50	565	2.0
07	LED Super Blue	800	1,500	470	3.8
08	LED Bi-Color – Amber (Green)	10	10	585/565	2.0

*LED FORWARD CURRENT: 20 mA

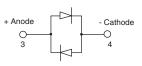
LED FORWARD VOLTAGE: see chart above

LED REVERSE VOLTAGE: 5.0 V MAX

* For information on specific and custom LED, please contact Customer Service.

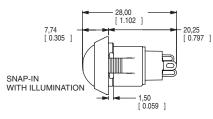
NOTE:

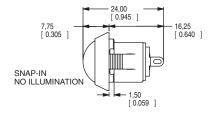
For bi-color LED's the polarity must be reversed to alternate the color



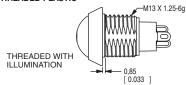
BUSHING STYLE ----

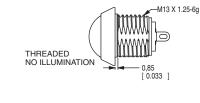
S SNAP-IN



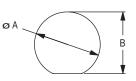








PANEL CUTOUT



	-	
PANEL THICKNESS	DIM A (± 0.05 mm)	DIM B (± 0.05 mm)
1 mm	13.70 mm	13.00 mm
[0.039 in]	[0.539 in]	[0.512 in]
2 mm	13.80 mm	13.00 mm
[0.079 in]	[0.539 in]	[0.512 in]
3 mm	13.90 mm	13.10 mm
[0.118 in]	[0.547 in]	[0.516 in]
THREADED BODY	13.70 mm	13.00 mm
MIN PANEL THICKNESS 1 mm	[0.539 in]	[0.512 in]

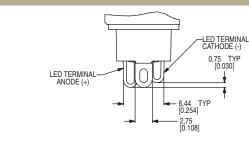


A 0.1mm min. chamfer on the leading edge of the mounting hole is recommended for snap-in version. 28 Jul 21

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

Third Angle Projection

TERMINATION



0,70 [0.028]

WIRE LEADS WITH POTTED BASE, SNAP-IN NO ILLUMINATION

WIRE LEADS WITH POTTED BASE, THREADED NO ILLUMINATION

A-112

5,70 [0.224]

2X ø 1,00 [0.039]

PCB HOLE PATTERN BOARD VIEW

ø 11,11 [0.437]

www

- 28,44 TYP [1.120]

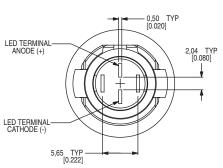
20,69 TYP [0.815]

304,81 [12.000] WIRELEADS 22 AWG STD

304,81 [12.000] WIRELEADS 22 AWG STD

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* Switching terminals are gold and LED terminals are silver



0,50 TYP [0.020]

2,83 TYP [0.111]

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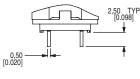
3,90 [0.154]

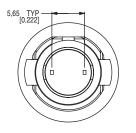
2,83 TYP [0.111]

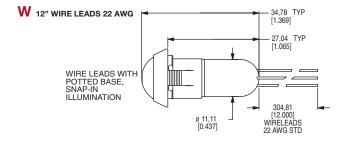
C PC TERMINALS

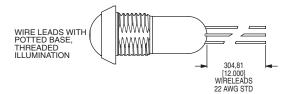
Z SOLDER LUG

*** Illumination not available with PC Terminals









Wires: Black wires - Terminals Red wires - LED (+) Positive White wire - LED (-) Negative



Dimensions are shown: mm (inches

Specifications and dimensions subject to change

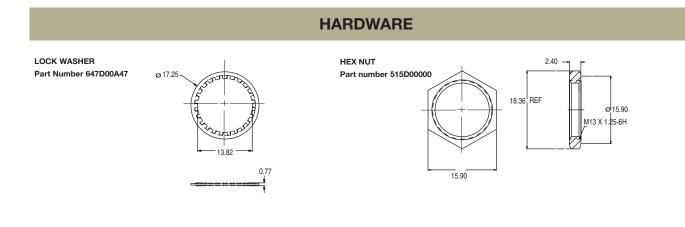
Third Angle

Projection

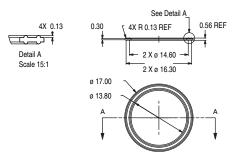
www.ckswitches.com

CONTACT MATERIAL B gold OPTION CODE CONTACT MATERIAL B Gold

E EPOXY All models are epoxy sealed



PANEL SEAL Part Number 655D00000



Caps available on next page



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

www.ckswitches.com

Third Angle Projection

AVAILABLE CAPS

481D XX XXX





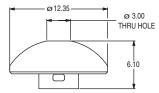


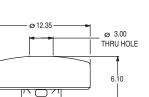


PART NUMBER	HOLE	STYLE
481DXX000	NO	DOME
481DXX001	YES	DOME
481DXX002	NO	EXTENDED DOME
481DXX003	YES	EXTENDED DOME
481DXX004	NO	CONCAVE
481DXX005	YES	CONCAVE

DOME

481DXX000 = NO HOLE 481DXX001 = HOLE



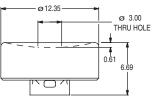


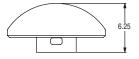


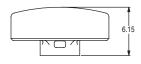
481DXX002 = NO HOLE 481DXX003 = HOLE

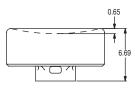
CONCAVE

481DXX004 = NO HOLE 481DXX005 = HOLE















Jushbutton

Features/Benefits IP67 sealed

1,000,000 life cycle

- Illumination
- Threaded or snap-in mounting
- RoHS compliant

Typical Applications

- Harsh environments
- Off-Road
- Industrial
- Medical
- Transportation
- Joystick control modules
- Gaming
- Militarv



Specifications FUNCTION: SPST Momentary CONTACT ARRANGEMENT: N.O. MOUNTING TYPE: Snap-in (no panel seal) Threaded body (hex nut, lock washer, and panel seal gasket provided) Torque spec for threaded body: Do not exceed 8-9 in-lbs (0.9-1.0 N.m) Mechanical

OPERATING LIFE: 1,000,000 cycles TOTAL TRAVEL: 2.1 ± 0.2 mm OPERATING POINT 1.55 ± 0.25 mm OVER TRAVEL: 0.6 min. OPERATING FORCE: 4N ± 1N standard configuration; other force option 2N ± 0.5N VIBRATION: 10-500 Hz 10g Max SHOCK: 60g 11ms sawtooth wave Electrical

CONTACT RATING: 200mA @ 24 V DC resistive (500,000 cycles) 100mA @ 50 V DC resistive (500,000 cycles) 400mA @ 32 V AC resistive (500,000 cycles) 125mA @ 125 V AC resistive (1,000,000 cycles)

DIELECTRIC STRENGTH: 1000 V AC min. INSULATION RESISTANCE: 1 G Ω @ 500 VDC INITIAL CONTACT RESISTANCE 50 mΩ max (without wire leads) BOUNCE TIME: <5 ms

Materials HOUSING: PBT BASE: PBT CAP: Painted polycarbonate ACTUATOR: Illuminated: Clear polycarbonate **INTERNAL SEAL: Silicone rubber**

TERMINALS: Copper alloy, gold over silver plating MOVABLE CONTACT: Copper alloy, gold over silver plating **TERMINAL SEAL: Epoxy** WIRE LEADS: UL1569 Black 22 AWG

Operating Environment OPERATING TEMPERATURE: -40°C to 85°C ESD PROTECTION: 20 KV min.

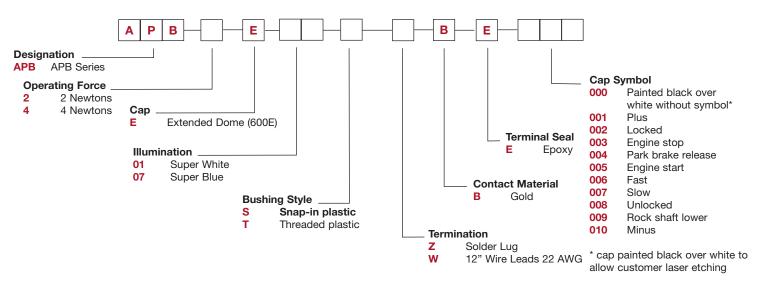
Process Environment

SEALING: IP67 for threaded body IP65 for snap-in version (no panel seal)

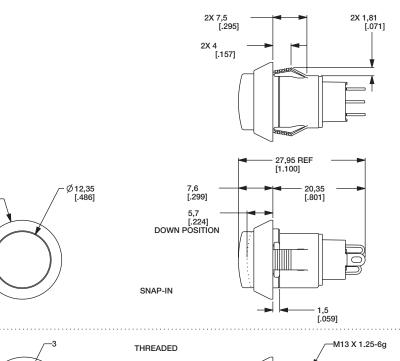
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, please contact Customer Service.

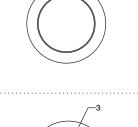
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

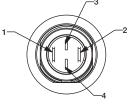


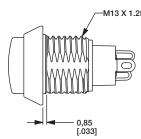






Ø17,4 [.685]

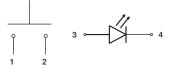


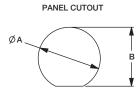


SEE SCHEMATIC

SPST-NO-DB

ELECTRICAL SCHEMATIC





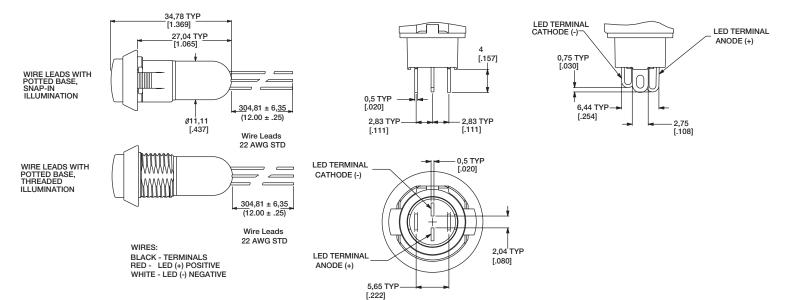
PANEL THICKNESS	DIM A (±0.05 MM)	DIM B (±0.05 MM)
1 MM	13.70 MM	13.00 MM
[0.039 IN]	[0.539 IN]	[0.512 IN]
2 MM	13.80 MM	13.00 MM
[0.079 IN]	[0.539 IN]	[0.512 IN]
3 MM	13.90 MM	13.10 MM
[0.118 IN]	[0.547 IN]	[0.516 IN]
THREADED BODY	13.70 MM	13.00 MM
MIN PANEL THICKNESS 1 MM	[0.539 IN]	[0.512 IN]

A 0.1 MM MIN CHAMFER ON THE LEADING EDGE OF MOUNTING HOLE IS RECOMMENDED FOR SNAP-IN VERSION.









TERMINATION

Z SOLDER LUG

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL
В	Gold

TERMINAL SEAL

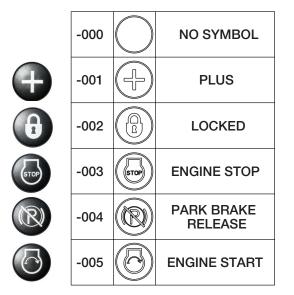
E EPOXY All models are epoxy sealed

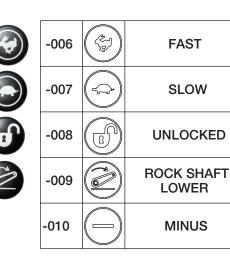
B GOLD



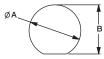
Third Angle Projection

CAP SYMBOLS





PANEL CUTOUT

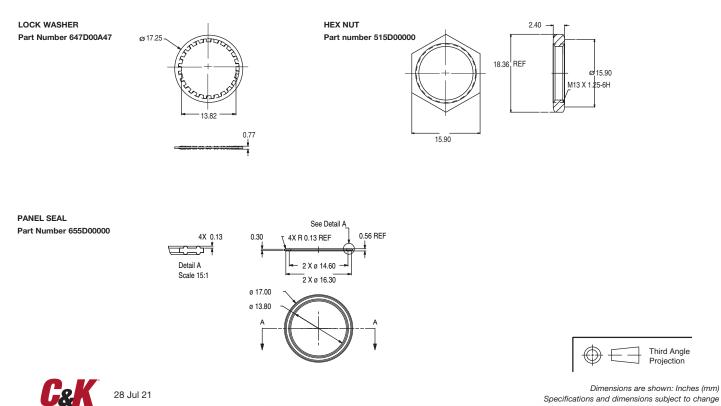


Panel Orientation Flat indicates bottom

See chart on previous page for dimensions

NOTES: 1. ALL GRAPHICS MUST BE POSITIONED AS SHOWN, PERPENDICULAR TO ALIGNMENT FEATURE ON UNDERSIDE OF CAP. 2. GRAPHIC MARKING MUST BE ALIGNED WITH THE FLAT FEATURE ON THE UNDERSIDE OF THE CAP AS SHOWN, TOLERANCE ±3⁸

HARDWARE



www.ckswitches.com

Features/Benefits

- IP68 sealed
- 1,000,000 life cycle
- Multiple housing styles
- Capable of up to 5A resistive load
- Wirelead options available
- RoHS compliant

Specifications

FUNCTION: SPDT Double Break (Form Z) Momentary CONTACT ARRANGEMENT: N.O. and N.C. MOUNTING TYPE: Threaded front or rear mount and slot mount TOROUTE SPEC FOR THREADED BODY: Do not exceed 50 inclu-

TORQUE SPEC FOR THREADED BODY: Do not exceed 50 in-lbs (5.65 N-m)

Mechanical

OPERATING LIFE: 1,000,000 cycles TOTAL TRAVEL: 1.6 ± 0.15 mm OPERATING POINT 0.9 ± 0.25 mm OVER TRAVEL: 0.45 min. OPERATING FORCE: $8N \pm 1.5N$ VIBRATION: 10-500 Hz 10g Max SHOCK: 50g 11ms sawtooth wave

Electrical

CONTACT RATING: Option G - Gold over Silver 10mA/5 VDC (1,000,000 cycles) Option Q - Silver 1A/32 VDC resistive (100,000 cycles) 5A/32 VDC resistive (25,000 cycles) 3A/32 VDC resistive (25,000 cycles)

Typical Applications

- Harsh environments
- Off-Road
- Industrial
- Transportation
- Military



Electrical (cont.)

DIELECTRIC STRENGTH: 1000 V AC for 1 min. INSULATION RESISTANCE: 1 G Ω @ 500 VDC INITIAL CONTACT RESISTANCE 50 m Ω max (without wire leads) BOUNCE TIME: <5 ms

Materials

HOUSING: 6061-T6 Aluminum, black or clear anodized BASE: PBT CAP: PBT ACTUATOR: PBT INTERNAL SEAL: Silicone rubber TERMINALS: Copper with silver nickel inlay, silver plating MOVABLE CONTACT: Copper alloy, gold over silver plating TERMINAL SEAL: Epoxy

Operating Environment

OPERATING TEMPERATURE: -40°C to +85°C ESD PROTECTION: 15KV min.

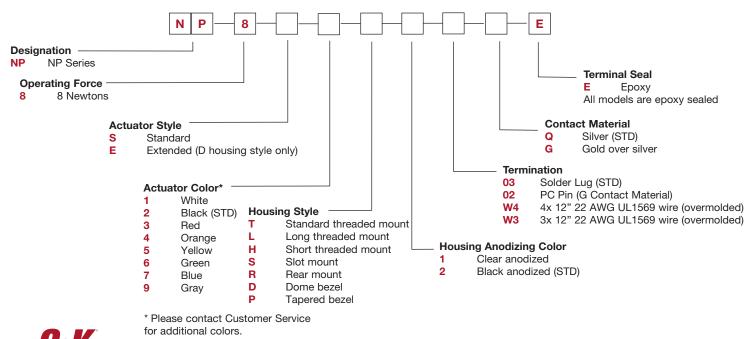
Process Environment

SEALING: IP68

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

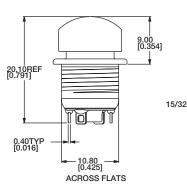
Build-A-Switch

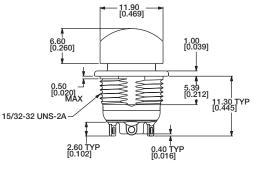
To order, simply select desired option from each category and place in the appropriate box.

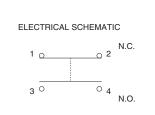


www.ckswitches.com

STANDARD VIEW







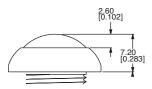
OPERATING FORCE

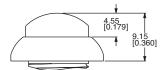
OPTION CODE	OPERATING FORCE
8	8 N

ACTUATOR STYLE

S STANDARD

G&K





E EXTENDED (D HOUSING STYLE ONLY)

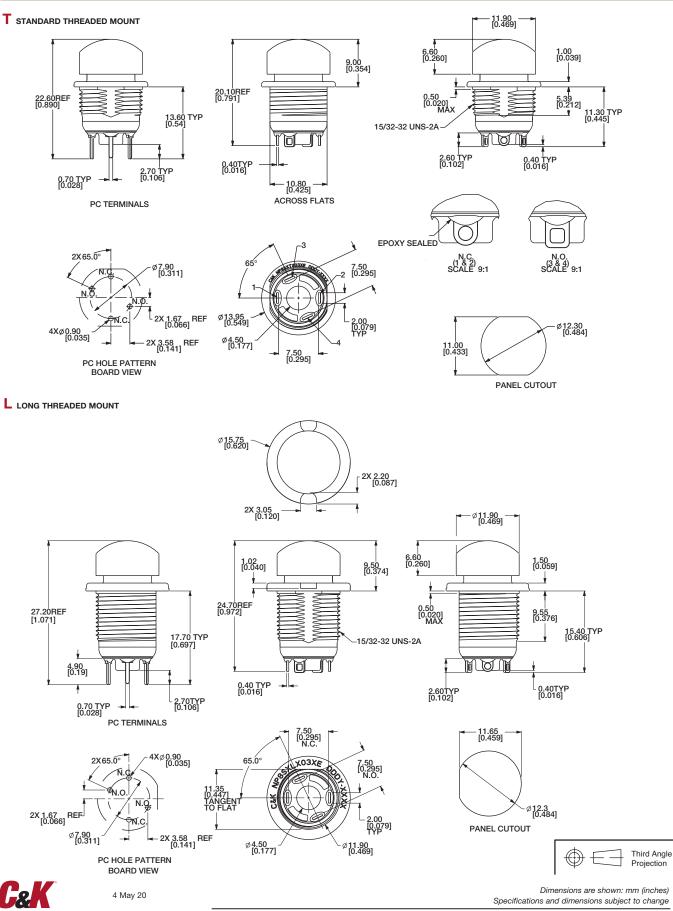
ACTUATOR COLOR

ACTUATOR COLOR
White
Black
Red
Orange
Yellow
Green
Blue
Gray

For additional colors please contact Customer Service.

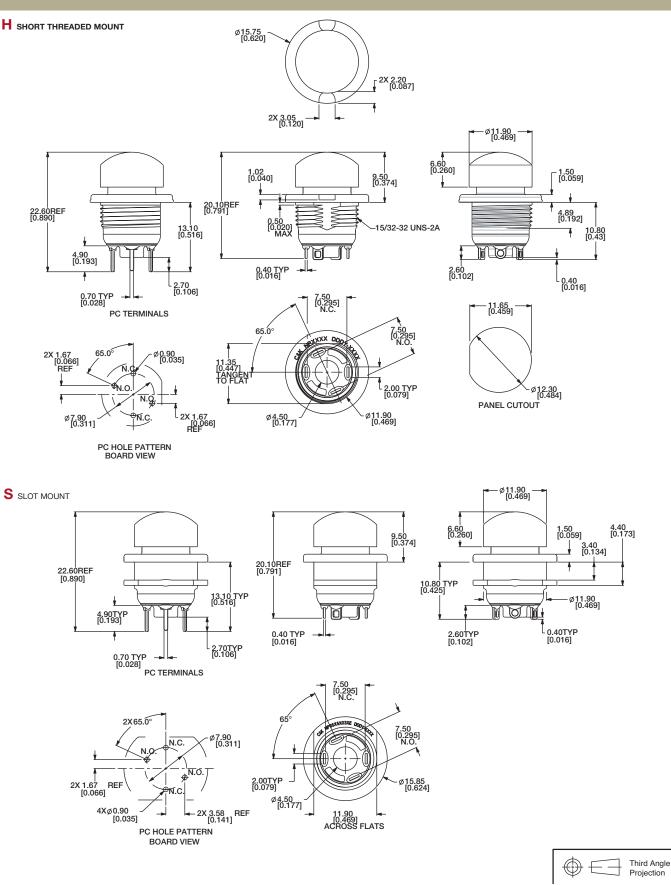


4 May 20



HOUSING STYLE

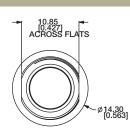
HOUSING STYLE

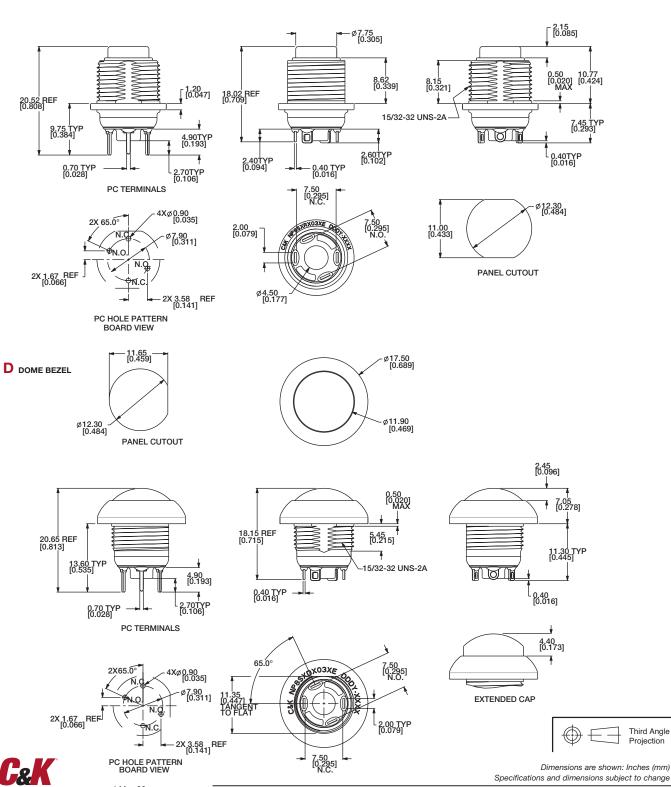


C&K

HOUSING STYLE

R REAR MOUNT





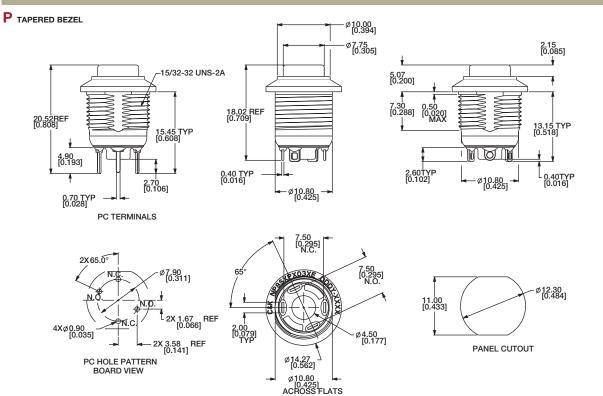
A-123

4 May 20

Third Angle

Projection

HOUSING STYLE

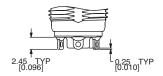


HOUSING ANODIZING COLOR

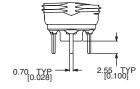
OPTION CODE	ANODIZING COLOR
1	Clear anodized
2	Black anodized (STD)

TERMINATION

03 SOLDER LUG (STD)



02 PC PIN (G CONTACT MATERIAL)



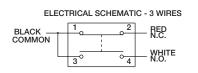


A Pushbutton

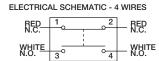
C&K

Pushbutton > **TERMINATION** M 14.70 [0.579] BEF 14.20 [0.559 REF 9.65 [0.380] REF 14.70 [0.579] 18.80 [0.740] REF I Ŧ Щ 302.80±12.70 [11.92±0.50] Ш \square \square \square (SEE SCHEMATICS)

W3 3X 12" 22 AWG UL1569 WIRE (OVERMOLDED)



W4 4X 12" 22 AWG UL1569 WIRE (OVERMOLDED)



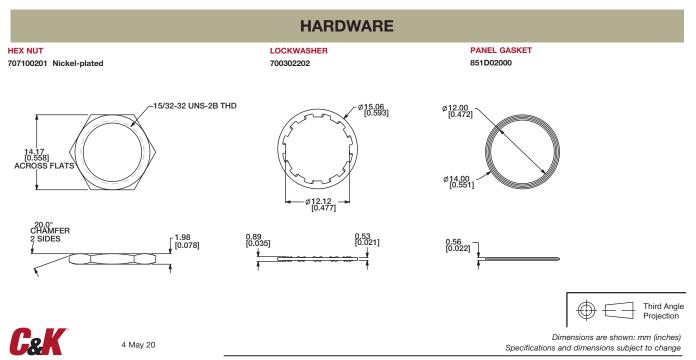
CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL
Q	Silver (STD)
G	Gold over Silver

TERMINAL SEAL

E EPOXY

All models are epoxy sealed



14.70 [0.579] REF

Dimensions are shown: mm (inches)

Features/Benefits

- Snap-Action provides positive tactile feedback
- IP68 sealed to endure harsh environments
- 1,000,000 life cycle
- Up to 5A resistive load
- Multiple housing styles
- Various termination types and wirelead options are also available
- RoHS compliant

Specifications

FUNCTION: SPST, SPDT Double Break (Form Z) Momentary CONTACT ARRANGEMENT: N.O. and N.C. MOUNTING TYPE: Threaded front mount TORQUE SPEC FOR THREADED BODY: Do not exceed 10 in-lbs (1.35 N-m)

Mechanical

OPERATING LIFE: 1,000,000 cycles TOTAL TRAVEL: 2 mm max. OPERATING POINT 0.9 ± 0.25 mm OVER TRAVEL: 0.25 mm min. OPERATING FORCE: 3N \pm 1.5N 8N \pm 1.5N VIBRATION: 10-500 Hz 10g Max SHOCK: 50g 11ms sawtooth wave

Electrical

CONTACT RATING: Option "Q" Silver 5A/32 VDC resistive (25,000 cycles) 3A/32 VDC resistive (25,000 cycles) Option "G" Gold over Silver 10mA/5 VDC resistive (1,000,000 cycles)

Typical Applications

- Control Grips
- Off-Road Panels
- Heavy Equipment
- Industrial Instruments
- Lifts
- Conveyor Controls



Sealed Pushbutton Switch

PNP Series

DIELECTRIC STRENGTH: 1000 V AC for 1 min. INSULATION RESISTANCE: 1 G Ω @ 500 VDC INITIAL CONTACT RESISTANCE 50 m Ω max (without wire leads) BOUNCE TIME: <5 ms

Materials

HOUSING: PBT/PC BASE: PBT CAP: PBT ACTUATOR: PBT INTERNAL SEAL: Silicone rubber TERMINALS: Copper with silver nickel inlay, silver plating MOVABLE CONTACT: Copper alloy, gold over silver plating TERMINAL SEAL: Epoxy

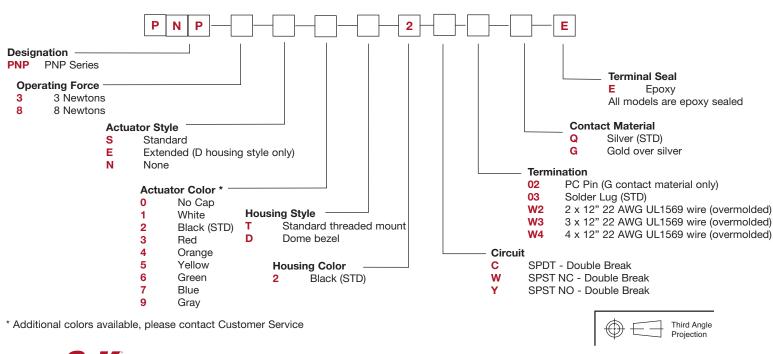
Operating Environment

OPERATING TEMPERATURE: -40°C to +85°C ESD PROTECTION: 15KV min. SEALING: IP68

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

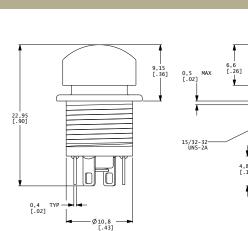


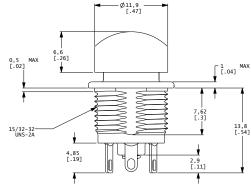
58 31

3 Dec 20



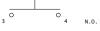
PNP Series Sealed Pushbutton Switch





STANDARD VIEW





OPERATING FORCE

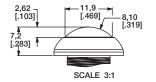
OPTION CODE	OPERATING FORCE
3	3 N
8	8 N

ACTUATOR STYLE

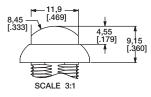
S STANDARD

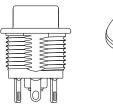
E EXTENDED (D HOUSING STYLE ONLY)

N NO CAP



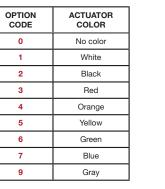
C_&K







ACTUATOR COLOR



* Cap may be ordered separately



Dimensions are shown: mm (inches)

Specifications and dimensions subject to change

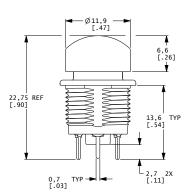
3 Dec 20

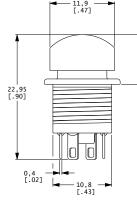
PNP Series Sealed Pushbutton Switch

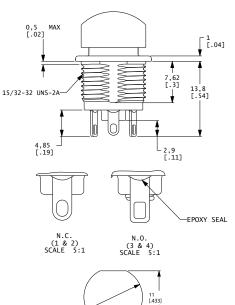
HOUSING STYLE

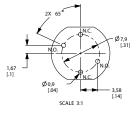
9,15 [.36]

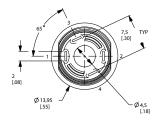
T STANDARD THREADED MOUNT

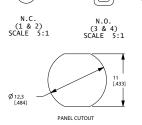




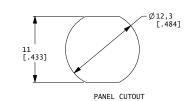


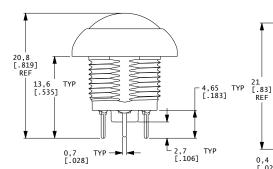


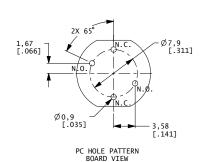




D DOME BEZEL

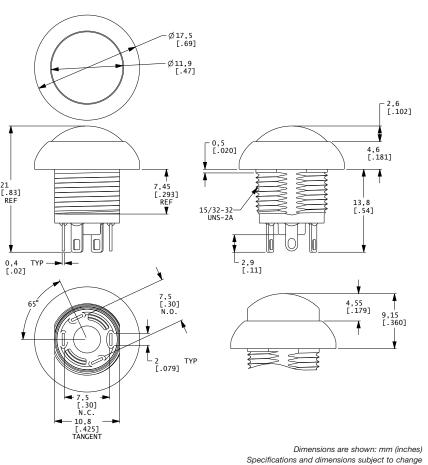






3 Dec 20

C&K

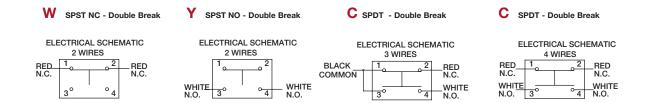




PNP Series Sealed Pushbutton Switch

OPTION CODE	COLOR
2	Black (STD)

CIRCUIT

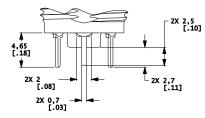


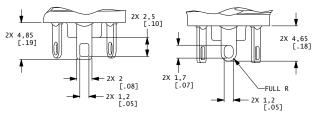
TERMINATION

02 PC PIN

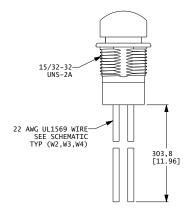
Pushbutton >

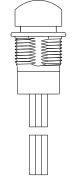






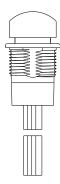
W2 2 x 12" 22 AWG UL1569 wire (overmolded)





W3 3 x 12" 22 AWG UL1569 wire (overmolded)

W4 4 x 12" 22 AWG UL1569 wire (overmolded)



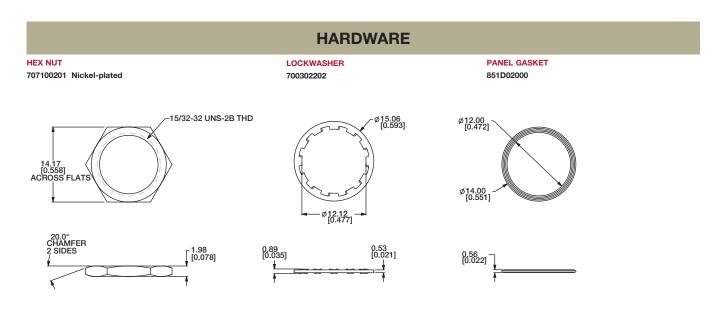


CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL
Q	Silver (STD)
G	Gold over silver

TERMINAL SEAL

E EPOXY All models are epoxy sealed





ATP16 Series Anti-Vandal Sealed Pushbutton Switch

Features/Benefits Typ

- Momentary or Lock version
- IP67 sealed

Pushbutton >

- Rated at 2A / 36 Vdc
- 1,000,000 life cycle
- Various colors of LED illuminate indicator
- Choices of actuator with ring or power logo
- RoHS compliant

Specifications

FUNCTION: SPST CONTACT ARRANGEMENT: N.O. MOUNTING TYPE: Threaded front panel mount TORQUE FOR THREADED BODY: 11.5 kgf/cm

Mechanical

OPERATING LIFE: Momentary 1,000,000 cycles Lock 100,000 cycles TOTAL TRAVEL: Momentary 2.0 mm; Lock 2.3 mm OPERATING FORCE: 4.5 ± 1.5N

Electrical

CONTACT RATING: 2A / 36Vdc OPERATING LIFE: Make-and-break cycles at full load 200,000 (Momentary) 100,000 (Lock)

DIELECTRIC STRENGTH: 2,000 V RMS @ sea level INSULATION RESISTANCE: 1,000 M Ω min. @ 500 VDC INITIAL CONTACT RESISTANCE : 50 m Ω max @1A 12VDC

Typical Applications

- Alarm, safety and security systems
- Intercom "push-to-talk" devices
- Automatic food and drink vending machines
- Parking lot ticket machines & ticket paying stations
- Industrial Instruments

Materials

BUSHING: Stainless steel / Aluminum alloy, anodized BASE: PBT (UL 94-A0), Nylon 6/6 (lock version) ACTUATOR: PC (UL 94-V2); POM (lock version) INTERNAL ASSEMBLY: POM / PA66 SPRING: Steel SEALING / O-ring: Silicone (Translucent) / Silicone TERMINALS / CONTACT: Brass, Silver or gold plated HEX NUT: Brass (Nickel plated)

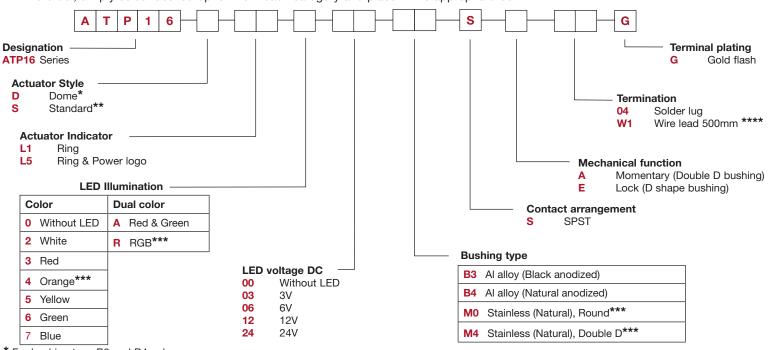
Operating Environment

OPERATING TEMPERATURE: -20°C to +70°C SEALING / PROTECTION: IP67

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.



* For bushing type B3 and B4 only.

** Available on bushing type M0 & M4 only.

*** Available on momentary function only.

*** Available upon request, please consult your sales representative for details.

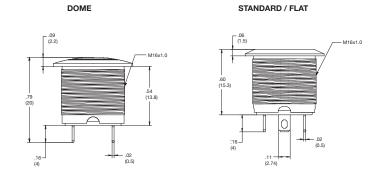


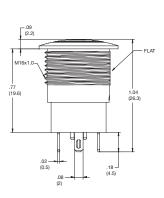
STANDARD VIEW

MOMENTARY



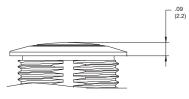
E A Pushbutton



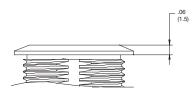


ACTUATOR STYLE



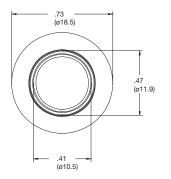


S STANDARD / FLAT

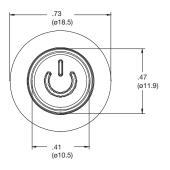


ACTUATOR INDICATOR

L1 RING



L5 RING & POWER



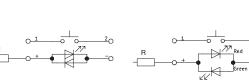


DUAL COLOR LED

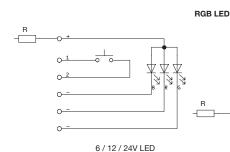
CIRCUIT

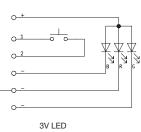
MOMENTARY





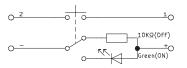
SINGLE COLOR LED



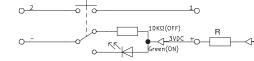


LOCK

SINGLE COLOR LED

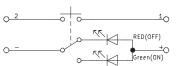






6 / 12 / 24V LED

DUAL COLOR LED

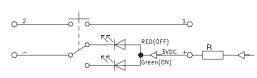


3V LED

R: Resistor value is according to the LED voltage applied.

Resistor value (Apply LED Voltage)	
LED input 3 VDC, 47 ohms (Red/Yellow/Orange LED, also applied to the dual LED with any of these 3 colors)	
LED input 6 VDC, 180 ohms	
LED input 12 VDC, 470 ohms	
LED input 24 VDC, 1000 ohms	

Ohms value of resistance tolerance: $\pm 5\%$

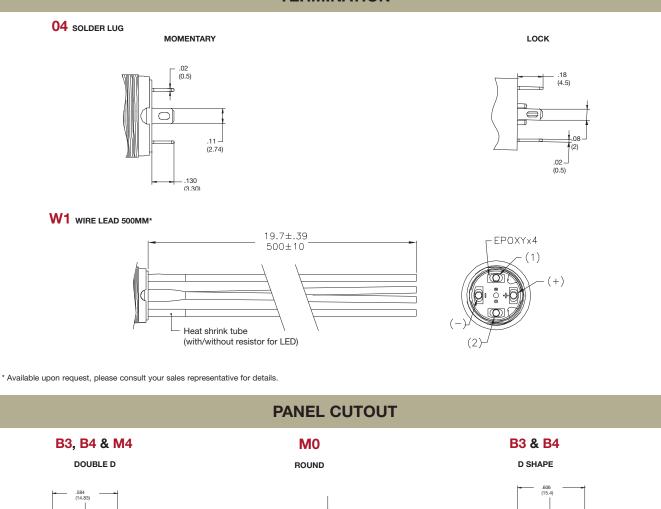


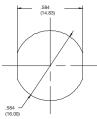
6 / 12 / 24V LED

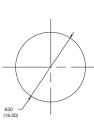


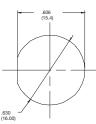
ATP16 Series Anti-Vandal Sealed Pushbutton Switch

TERMINATION



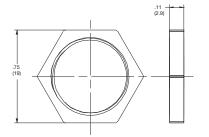




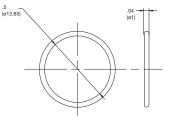


HARDWARE

HEX NUT Order PN: ATP16-HN



O RING Order PN: ATP16-OR





www.ckswitches.com

Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

ATPS19 Series Anti-Vandal Short-Body Sealed Pushbutton Switch

Features/Benefits • Momentary Alarm, safety & security systems IP67 sealed & IK10 (Stainless steel bushing) Intercom "push-to-talk" Rated at 2A / 36 Vdc devices 1,000,000 mechanical lifecycles Automatic food & drink • Various colors of LED illuminate indicator vending machines Choices of actuator with ring or power logo • Parking lot ticket machines RoHS compliant & ticket paying stations

Specifications

Pushbutton >

FUNCTION: SPST CONTACT ARRANGEMENT: N.O. MOUNTING TYPE: Threaded front panel mount TORQUE FOR THREADED BODY: 11.5 kgf/cm

Mechanical

MECHANICAL LIFE: 1,000,000 cycles TOTAL TRAVEL: 1.8 ± 0.2 mm OPERATING FORCE: 4.5 ± 1.5N

Electrical

CONTACT RATING: 2A / 36Vdc

ELECTRICAL LIFE: Make-and-break cycles at full load 200,000 DIELECTRIC STRENGTH: 2,000 V RMS @ sea level INSULATION RESISTANCE: 1.000 MΩ min. @ 500 VDC INITIAL CONTACT RESISTANCE : 50 mΩ max @1A 12VDC

Typical Applications

Industrial instruments

Materials

BUSHING: Stainless steel BASE: PA66, white (UL 94-V0) ACTUATOR: PC, translucent (UL 94-V2), std steel INTERNAL ASSEMBLY: PC, transparent (UL 94V2) SPRING: Steel SEALING / O-ring: Silicone (Translucent) / Silicone TERMINALS / CONTACT: Brass, gold flash plated / Brass, silver alloy HEX NUT: Brass (Nickel plated)

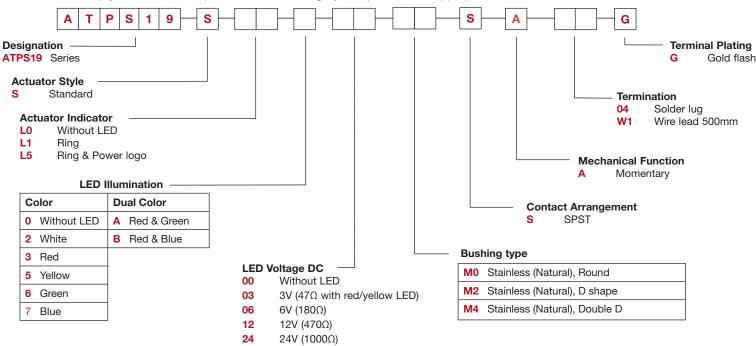
Operating Environment

OPERATING TEMPERATURE: -20°C to +70°C SEALING / PROTECTION: IP67

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

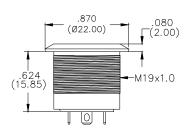


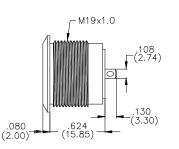


ATPS19 Series Anti-Vandal Short-Body Sealed Pushbutton Switch

STANDARD VIEW

STANDARD

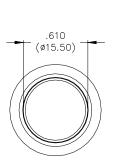


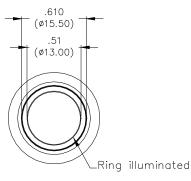


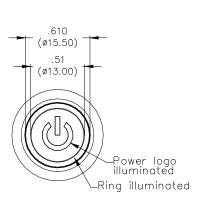
ACTUATOR INDICATOR

LO WITHOUT LED

L1 RING







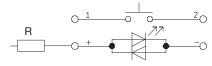
L5 RING & POWER

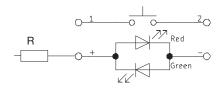
CIRCUIT

MOMENTARY

SINGLE COLOR LED

DUAL COLOR LED





R: Resistor value is according to the LED voltage applied.

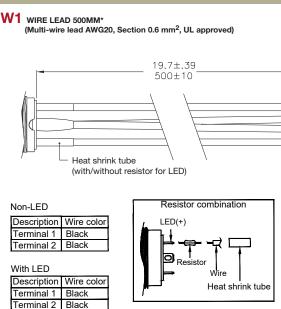
Resistor value (Apply LED Voltage)
LED input 3 VDC, 47 ohms (Red/Yellow LED type only)
LED input 6 VDC, 180 ohms
LED input 12 VDC, 470 ohms
LED input 24 VDC, 1000 ohms

Ohms value of resistance tolerance: ±5%

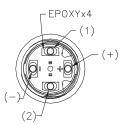


ATPS19 Series Anti-Vandal Short-Body Sealed Pushbutton Switch

04 SOLDER LUG .02 (0.5) \bigcirc 11 -(2.74) .130 (3.30)



TERMINATION



* Special length, please consult your sales representative for details.

PANEL CUTOUT

M0 ROUND



D SHAPE

Red

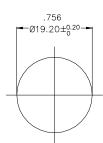
Green

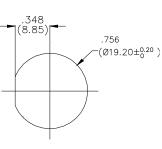
LED+

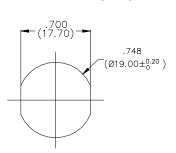
LED-



DOUBLE D Thickness: 6.0mm (Max.)

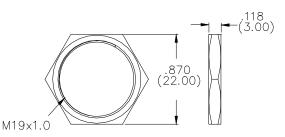




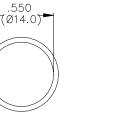


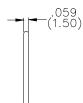
HARDWARE





O RING Order PN: ATP19-OR







ATP19 Series **Anti-Vandal Sealed Pushbutton Switch**

 Features/Benefits Momentary or Lock version IP67 sealed & IK10 (Stainless steel bushing) Capable of up to 3A resistive load 50,000 life cycle at full load Various colors of LED illuminate indicator Choices of pushbutton with symbol on spot, ring or power logo 	 Typical Applications Control Panels including car park and traffic light Industrial Instruments Lifts / Escalator Communication equipment Alarm, safety and security systems
Specifications	Materials
FUNCTION: Single pole and double poles CONTACT ARRANGEMENT: N.O. and N.C. MOUNTING TYPE: Threaded front panel mount TORQUE FOR THREADED BODY: 5-14 Nm	BUSHING: Stainless steel / Nickel plated brass / Aluminum alloy BASE: PBT (UL 94-A0), PC (UL 94-V2) ACTUATOR: PC (UL 94-V2); Stainless steel / Nickel plated brass / Aluminum alloy INTERNAL ASSEMBLY: POM / PA66
Mechanical	SPRING: Steel
OPERATING LIFE: Momentary 1,000,000 cycles Self-lock 500,000 cycles TOTAL TRAVEL: about 3.2 mm	SEALING / O-ring: Silicone TERMINALS: Brass with silver or gold plated CONTACT: Copper, silver plated
OPERATING FORCE: 1 pole 2.5 \pm 1N 2 pole 3.5 \pm 1N	

Electrical

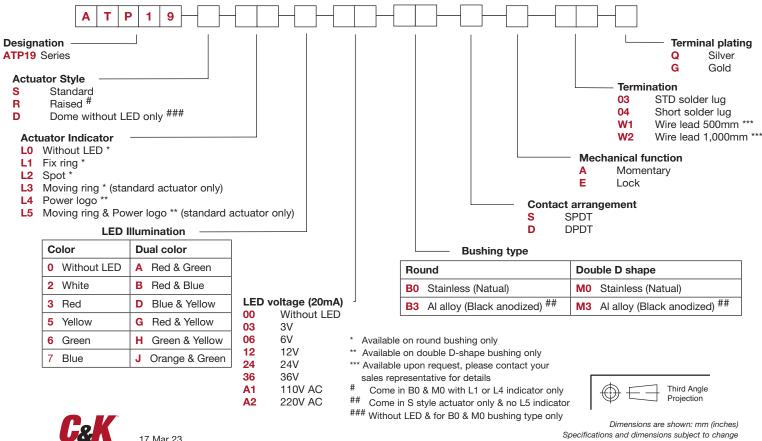
CONTACT RATING: Ith 5A/250VAC 3A / 250VAC 3A / 28VDC OPERATING LIFE: 50,000 make-and-break cycles at full load DIELECTRIC STRENGTH: 2,000 V RMS @ sea level INSULATION RESISTANCE: 1,000 MΩ min. @ 500 VDC INITIAL CONTACT RESISTANCE : 50 mΩ max @1A 12VDC

OPERATING TEMPERATURE: -20°C to +55°C SEALING / PROTECTION: IP67 / IK10 (Stainless steel bushing)

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

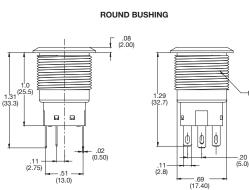


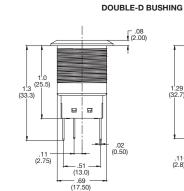
ATP19 Series Anti-Vandal Sealed Pushbutton Switch

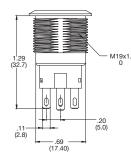
STANDARD VIEW

M19x1



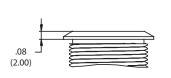


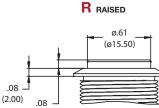




ACTUATOR STYLE

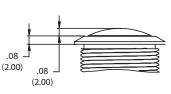
S STANDARD



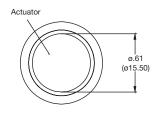


(2.00)

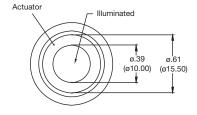




LO WITHOUT LED



L2 SPOT

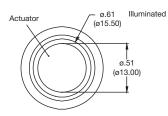


17 Mar 23

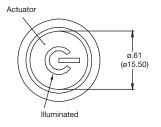
6.2

L1 FIX RING

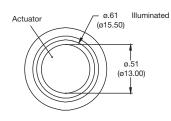
ACTUATOR INDICATOR



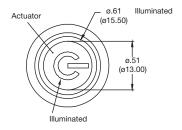
L4 FPOWER LOGO



L3 MOVING RING



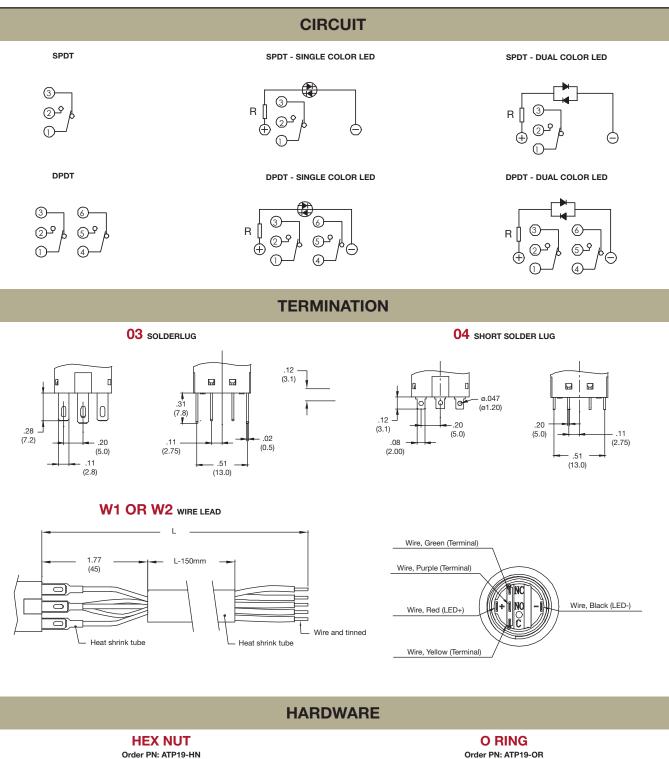
L5 POWER & MOVING RING

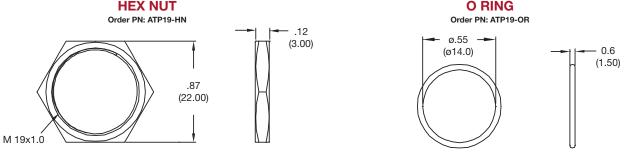


Dimensions are shown: mm (inches) Specifications and dimensions subject to change

www.ckswitches.com

ATP19 Series Anti-Vandal Sealed Pushbutton Switch







ATPS22 Series Anti-Vandal Short-Body Sealed Pushbutton Switch

Typical Applications

- Alarm, safety & security systems
- Intercom "push-to-talk" devices
- Automatic food & drink vending machines
- Parking lot ticket machines & ticket paying stations
- Industrial instruments

Materials

BUSHING: Stainless steel BASE: PA66, white (UL 94-V0) ACTUATOR: PC, translucent (UL 94-V2), std steel INTERNAL ASSEMBLY: PC, transparent (UL 94V2) SPRING: Steel SEALING / O-ring: Silicone (Translucent) / Silicone TERMINALS / CONTACT: Brass, gold flash plated / Brass, silver alloy HEX NUT: Brass (Nickel plated)

Operating Environment

OPERATING TEMPERATURE: -20°C to +70°C SEALING / PROTECTION: IP67

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

Features/Benefits

RoHS compliant

Specifications

FUNCTION: SPST

Rated at 2A / 36 Vdc

1,000,000 mechanical lifecycles

MOUNTING TYPE: Threaded front panel mount

TORQUE FOR THREADED BODY: 11.5 kgf/cm

• Momentary

Pushbutton >

MECHANICAL LIFE: 1,000,000 cycles TOTAL TRAVEL: 1.8 ± 0.2 mm OPERATING FORCE: 4.5 ± 1.5N

CONTACT ARRANGEMENT: N.O.

Electrical

CONTACT RATING: 2A / 36Vdc

ELECTRICAL LIFE: Make-and-break cycles at full load 200,000 DIELECTRIC STRENGTH: 2,000 V RMS @ sea level INSULATION RESISTANCE: 1,000 MΩ min. @ 500 VDC INITIAL CONTACT RESISTANCE : 50 mΩ max @1A 12VDC

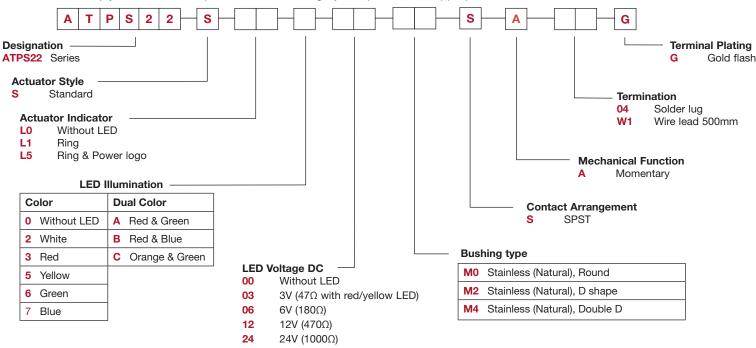
IP67 sealed & IK10 (Stainless steel bushing)

• Various colors of LED illuminate indicator

Choices of actuator with ring or power logo

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.



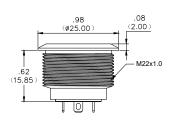


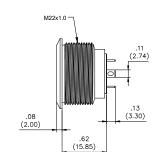


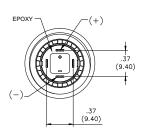


NEW

STANDARD





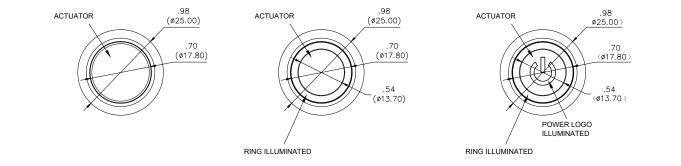


ACTUATOR INDICATOR

LO WITHOUT LED

L1 RING

L5 RING & POWER



CIRCUIT

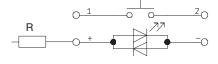
MOMENTARY

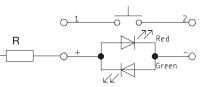
WITHOUT LED

SINGLE COLOR LED

DUAL COLOR LED







R: Resistor value is according to the LED voltage applied.

Resistor value (Apply LED Voltage)
LED input 3 VDC, 47 ohms (Red/Yellow LED type only)
LED input 6 VDC, 180 ohms
LED input 12 VDC, 470 ohms
LED input 24 VDC, 1000 ohms

Ohms value of resistance tolerance: ±5%



.02 (0.5)

.130

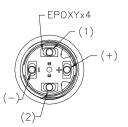
 \bigcirc

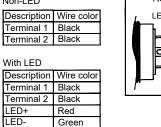
ATPS22 Series NEW Anti-Vandal Short-Body Sealed Pushbutton Switch

LED+

LED-

TERMINATION 04 SOLDER LUG W1 WIRE LEAD 500MM* (Multi-wire lead AWG20, Section 0.6 mm², UL approved) 19.7±.39 500±10 11. (2.74) Heat shrink tube (with/without resistor for LED) (3.30)Resistor combination Non-LED Description Wire color LED(+) Terminal 1 Black Terminal 2 Black

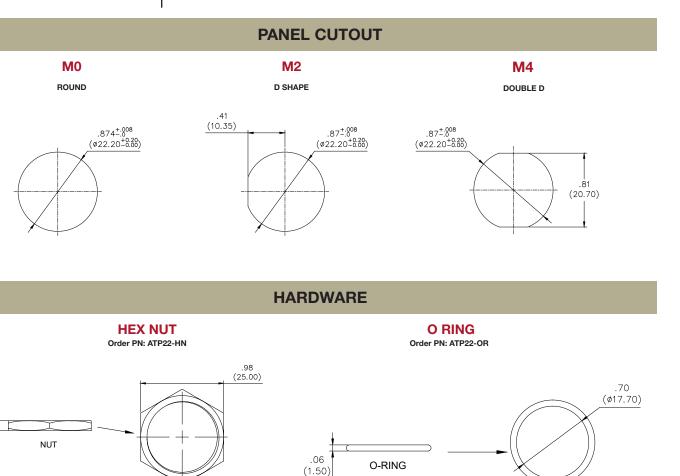




* Special length, please consult your sales representative for details.

Vire

Heat shrink tube



.12

(3.00)

5 Jul 22

ATP22 Series Anti-Vandal Sealed Pushbutton Switch

Features/Benefits

Momentary or Lock version

- IP67 sealed & IK10 (Stainless steel bushing)
- Capable of up to 3A resistive load
- 50.000 life cvcle at full load
- Various colors of LED illuminate indicator
- Choices of pushbutton with symbol on spot, ring or power logo

Specifications

FUNCTION: Single pole and double poles CONTACT ARRANGEMENT: N.O. and N.C. MOUNTING TYPE: Threaded front panel mount TORQUE FOR THREADED BODY: 5-14 Nm

Mechanical

OPERATING LIFE: Momentary 1,000,000 cycles Self-lock 500,000 cycles

TOTAL TRAVEL: about 3.2 mm OPERATING FORCE: 1 pole 2.5 ± 1N 2 pole 3.5 ± 1N

Electrical

CONTACT RATING: Ith 5A/250VAC 3A / 250VAC 3A / 28VDC OPERATING LIFE: 50,000 make-and-break cycles at full load DIELECTRIC STRENGTH: 2,000 V RMS @ sea level INSULATION RESISTANCE: 1,000 MΩ min. @ 500 VDC INITIAL CONTACT RESISTANCE : 50 mΩ max @1A 12VDC

Typical Applications

- Control Panels including car park and traffic light
- Industrial Instruments
- Lifts / Escalator Communication equipment
- Alarm, safety and security systems



Materials

BUSHING: Stainless steel / Aluminum alloy BASE: PBT (UL 94-A0), PC (UL 94-V2) ACTUATOR: PC; Stainless steel / Aluminum alloy INTERNAL ASSEMBLY: POM / PA66 SPRING: Steel SEALING / O-ring: Silicone TERMINALS: Brass with silver or gold plated CONTACT: Copper, silver plated

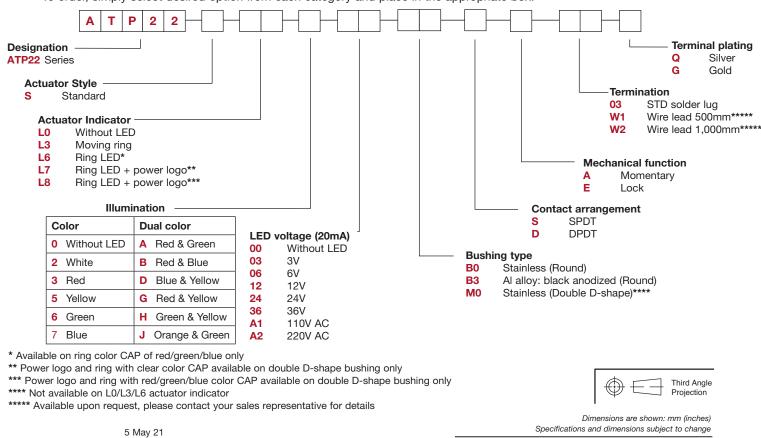
Operating Environment

OPERATING TEMPERATURE: -20°C to +55°C SEALING / PROTECTION: IP67 / IK10 (Stainless steel bushing)

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

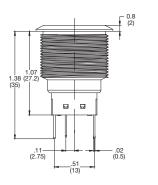
Build-A-Switch

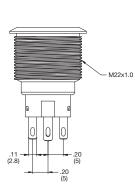
To order, simply select desired option from each category and place in the appropriate box.

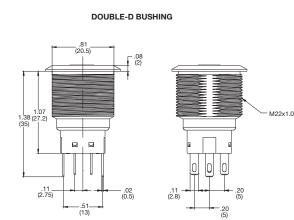


STANDARD VIEW

ROUND BUSHING

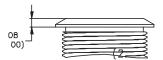






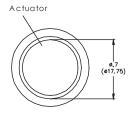
ACTUATOR STYLE





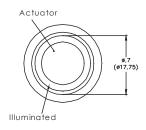
ACTUATOR INDICATOR



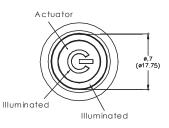


5 May 21

L3 & L6 RING LED



L7 & L8 POWER & RING





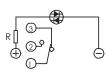
CIRCUIT

SPDT - SINGLE COLOR LED

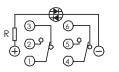
SPDT

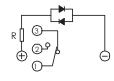
DPDT





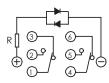
DPDT - SINGLE COLOR LED





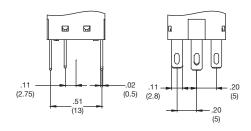
SPDT - DUAL COLOR LED

DPDT - DUAL COLOR LED

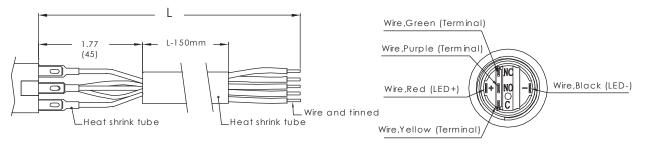


TERMINATION

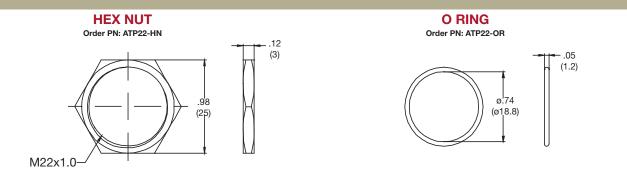
03 SOLDERLUG



W1 OR W2 WIRE LEAD



HARDWARE





Features/Benefits

- Illuminated display
- Small size
- Cold lighting
- Tactile feed back

Typical Applications

• Avionic



Mechanical

ACTUATION FORCE: $5,5 \text{ N} \pm 0,5 \text{ N}$ MAXIMUM FORCE: 80 NTRAVEL TO CONTACT: $1,2 \pm 0,1 \text{ mm}$ OVERTRAVEL: >0,3 mmTOTAL TRAVEL: $1,5 \pm 0,1 \text{ mm}$ LIFE EXPECTANCY: 10° operations 28 V - 10 mAWEIGHT: 2 grams VIBRATION: $\pm 0,45 \text{ mm}$ from 33 Hz to 75 HzACCELERATION: 10 g max

Electrical

Build-A-Switch

CONTACTS: Gold plated VOLTAGE: Max 100 V - Min 20 mV DC CARRYING CURRENT: Max 250 mA - Min 50 μ A SWITCHING CURRENT: Max 50 mA - Min 50 μ A MAX SWITCHING POWER: 1 W CONTACT RESISTANCE: < 50 Ω DIELECTRIC STRENGTH: 500 V rms INSULATION RESISTANCE (100 V): > 5000 M Ω BOUNCE: < 3 ms SWITCHING OF 2 POLES MATCHING: < 10 ms

Environmental Data

STORAGE TEMPERATURE: -55°C TO 85°C OPERATING TEMPERATURE: -30°C TO 85°C TEMPERATURE OF KEY TO CAP: < Ambiant +25°C HUMIDITY TEST: 21 days (-40°C - 93% HR) ALTITUDE PRESSURE: From 20 hPa to 1070 hPa

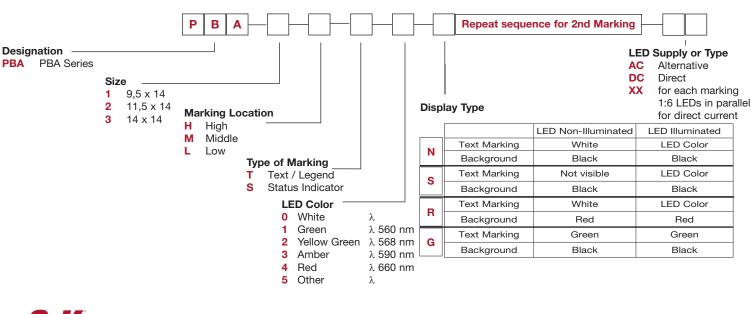
Soldering Data

MANUAL SOLDERING: 250°C / 2s SEALING: According to IP64

Plastic Material

Housing and Cap: UL-94 V0

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



To order, simply select desired option from each category and place in the appropriate box.



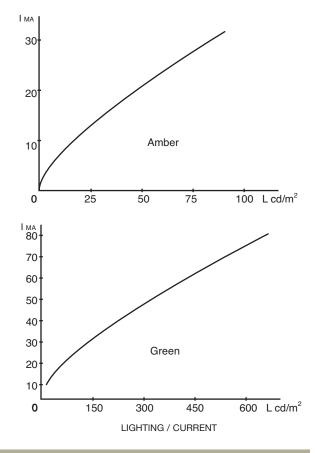
PBA Series Illuminated Pushbutton

LIGHTING DATA

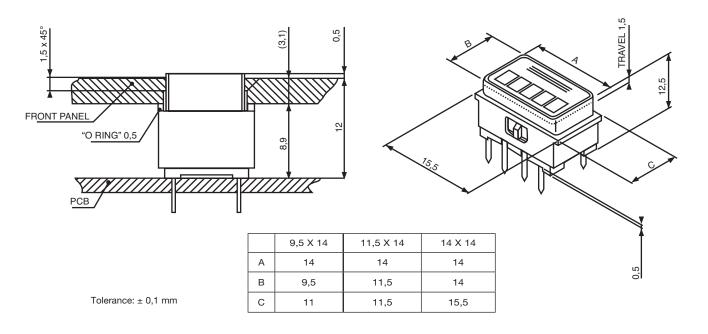
The legends of function and the status indicator can be illuminated separately.

Color		Amber	Green
Wave Length		586 < I < 592	555 < l < 560
Current Max		80 mA	80 mA
Chromaticity	X Y	0,54 < X < 0,58 0,40 < Y < 0,44	0,30 < X < 0,40 0,6 < Y
Contrast Min.		1,2	0,85

For other colors and displays, please contact Customer Service.



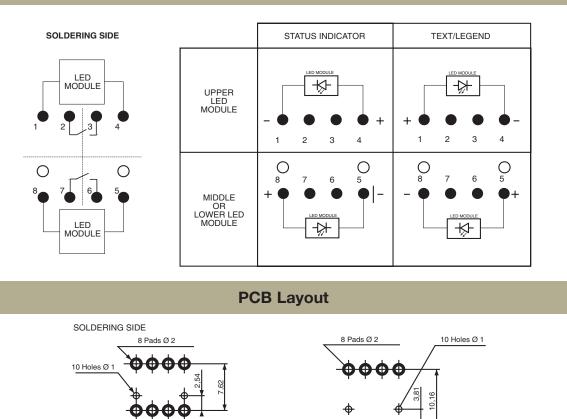
DIMENSIONS (applicable for any size)



Dimensions are shown: mm Specifications and dimensions subject to change

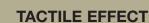
PBA Series Illuminated Pushbutton

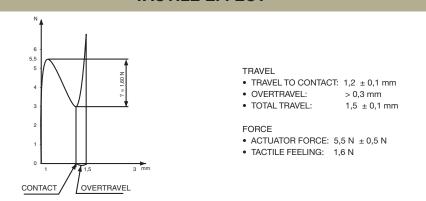
LED MODULE LAYOUT



2,54







2.54

2,54

APPLICABLE FOR SIZE

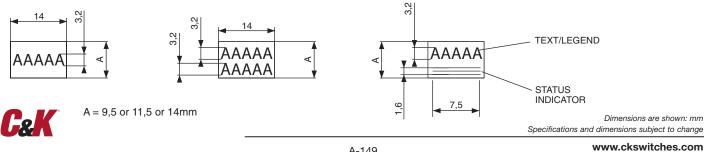
-14 x 14 mm

1 or 2 markings are available in any combination of text / legend or status indicator.

2,54

APPLICABLE FOR SIZE

- 9,5 x 14 mm - 11,5 x 14 mm



Features/Benefits

- Latching pushbutton
- Non-shorting with lock
- 5 mm travel
- SPDT

Typical Applications

- Automotive interior lighting
- Computer peripherals
- Appliances



PS-12G Series

Pushbutton Switches

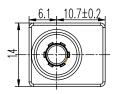
How To Order

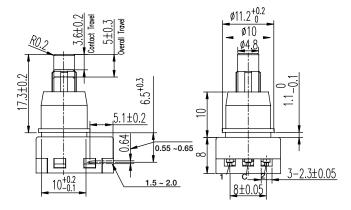
Part number list is shown below. For individual part details, please refer to the following pages.

Part Number (Part Description)	Product Details
PS-12G01	SPDT, non-shorting with lock, 1A @ 14 VDC, white actuator
PS-12G03	SPDT, non-shorting with lock, 2.2A @ 14.5 VDC, black actuator



PART NUMBER	PACKAGING	SCHEMATIC
PS-12G01	200 pieces	





Dimensions

WIDTH X DEPTH: 14 x 16.8 mm HEIGHT: 18 mm

Specifications

CONTACT RATING: 1A @ 14 VDC INITIAL CONTACT RESISTANCE: 100 m ohms max. INSULATION RESISTANCE: 100 M ohms min. DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal. OPERATING LIFE: 20,000 cycles with load OPERATING FORCE: 400 ± 100 gf OPERATING POSITION: 3.6 ± 0.2 mm TOTAL TRAVEL: 5 ± 0.3 mm OPERATING TEMPERATURE: -20°C to 70°C

Materials

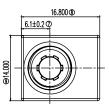
KNOB: POM (UL 94HB) HOUSING: PBT (UL 94V-0) COVER: PBT (UL 94V-0) ROTOR: PBT (UL 94V-0) SLIDER: POM (UL 94HB) TERMINAL: Phospher bronze, silver plated SPRING: Stainless steel CONTACT: Phospher bronze, silver plated

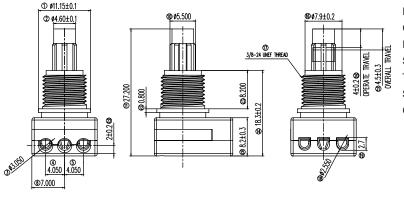


PS-12G Series Pushbutton Switches



PART NUMBER	PACKAGING	SCHEMATIC
PS-12G03	200 pieces	





TYCO .062 Commercial Pin and Socket Connector PT# 770983-1

Dimensions

WIDTH X DEPTH: 14 x 16.8 mm HEIGHT: 18.3 mm

Specifications

CONTACT RATING: 2.2A @ 14.5 VDC INITIAL CONTACT RESISTANCE: 50 m ohms max. INSULATION RESISTANCE: 100 M ohms min. DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal. OPERATING LIFE: 20,000 cycles with load OPERATING FORCE: 650 ± 300 gf OPERATING POSITION: 4.00 ± 0.2 mm TOTAL TRAVEL: 4.5 ± 0.3 mm

OPERATING TEMPERATURE: -40°C to 85°C

Materials

KNOB: POM (UL 94HB) HOUSING: PBT & PA (UL 94V-0) COVER: PBT (UL 94V-0) ROTOR: PBT (UL 94V-0) SLIDER: POM (UL 94HB) TERMINAL: Brass, silver plated SPRING: Stainless steel CONTACT: Phospher bronze, silver plated



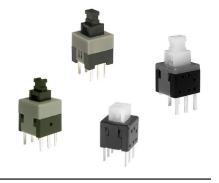
PS-22 Series Subminiature Pushbutton Switches

Features/Benefits

- Compact miniature push switch
- Momentary or latching options
- Shorting or non-shorting
- DPDT

Typical Applications

- Industrial
- Automotive
- Audio and visual equipment



How To Order

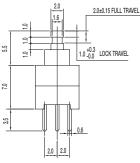
Part number list is shown below. For individual part details, please refer to the following pages.

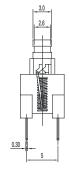
Part Number (Part Description)	Product Details	Part Number (Part Description)	Product Details
PS-2203-L NS PA	DPDT, non-shorting, lock, dim: 7.0*7.0*12.5 mm	PS-2214-L NS PA	DPDT, non-shorting, lock, dim: 5.8*5.8*7.5 mm
PS-2203-F NS PA	DPDT, non-shorting, mom, dim: 7.0*7.0*12.5 mm	PS-2214-F NS PA	DPDT, non-shorting, mom, dim: 5.8*5.8*7.5 mm
PS-2206-F NS	DPDT, non-shorting, mom, dim: 8.0*8.0*12.5 mm	PS-221605-L NS	DPDT, non-shorting, lock, dim: 5.8*5.8*10.0 mm

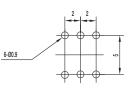


PART NUMBER	PACKAGING	SCHEMATIC
PS-2203-L NS PA PS-2203-F NS PA	1,000 pieces 1,000 pieces	









PIERCING PLAN

Dimensions

WIDTH X DEPTH: 7.0 x 7.0 mm HEIGHT: 12.5 mm

Specifications

CONTACT RATING: 0.1A @ 30 VDC INITIAL CONTACT RESISTANCE: 30 m ohms max. INSULATION RESISTANCE: 100 M ohms min. DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal. OPERATING LIFE: 10,000 cycles with load OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N) LOCK TRAVEL: 1 mm

TOTAL TRAVEL: 2 mm OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM Black HOUSING: PA Black COVER: POM Grey (latch) / White (Mom) TERMINAL: Brass, silver plated CONTACT CLIP: Phosphor bronze., silver plated SPRING: Stainless steel HOOK LOCK: Stainless steel (latch)



-2

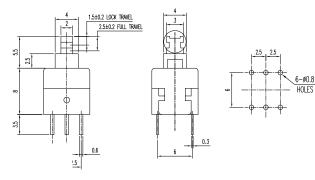
PS-22 Series Subminiature Pushbutton Switches



PART NUMBER	PACKAGING	SCHEMATIC
PS-2206-F NS	1,000 pieces	2P-2T <u> <u> </u> </u>







Dimensions

WIDTH X DEPTH: 8.0 x 8.0 mm HEIGHT: 13.5 mm

Specifications

CONTACT RATING: 0.1A @ 30 VDC INITIAL CONTACT RESISTANCE: 70 m ohms max. INSULATION RESISTANCE: 100 M ohms min. DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal. OPERATING LIFE: 10,000 cycles with load OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98N) LOCK TRAVEL: 1.5 mm TOTAL TRAVEL: 2.5 mm OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM Black HOUSING: PBT Black COVER: POM Grey (latch) / White (Mom) TERMINAL: Brass, silver plated CONTACT CLIP: Phosphor bronze., silver plated SPRING: Stainless steel HOOK LOCK: Stainless steel (latch)



4.5

PIERCING PLAN

Dimensions

WIDTH X DEPTH: 5.8 x 5.8 mm HEIGHT: 7.5 mm

Specifications

CONTACT RATING: 0.1A @ 30 VDC INITIAL CONTACT RESISTANCE: 80 m ohms max. INSULATION RESISTANCE: 100 M ohms min. DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal. OPERATING LIFE: 10,000 cycles with load OPERATING FORCE: 150 ± 50 gf (1.47 ± 0.49N) LOCK TRAVEL: 1.45 mm TOTAL TRAVEL: 2.3 mm OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM Natural (latch) / PA black HOUSING: PA Black COVER: PA Black TERMINAL: Brass, silver plated CONTACT CLIP: Phosphor bronze, silver clad SPRING: Stainless steel HOOK LOCK: Stainless steel (latch)



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3.6

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0.3

LOCK TRAVEL FULL TRAVEL

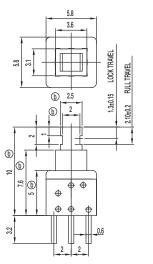
1.45±0.1

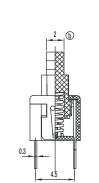
2.3±0.2

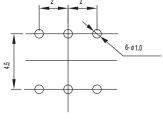
PS-22 Series Subminiature Pushbutton Switches



PART NUMBER	PACKAGING	SCHEMATIC
PS-221605-L NS	1,000 pieces	







PIERCING PLAN

Dimensions

WIDTH X DEPTH: 5.8 x 5.8 mm HEIGHT: 10 mm

Specifications

CONTACT RATING: 0.1A @ 30 VDC / 2A @ 2 VDC INITIAL CONTACT RESISTANCE: 80 m ohms max. INSULATION RESISTANCE: 100 M ohms min. DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal. OPERATING LIFE: 10,000 cycles with load OPERATING FORCE: 150 ± 50 gf (1.47 ± 0.49N) LOCK TRAVEL: 1.3 mm

LOCK TRAVEL 1.3 IIIII

TOTAL TRAVEL: 2.1 mm OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM Natural HOUSING: PA Black COVER: PC Grey TERMINAL: Bras, silver plated CONTACT CLIP: Phosphor bronze, silver clad SPRING: Stainless steel HOOK LOCK: Stainless steel (latch)



PS Series Miniature Pushbutton Switches



Features/Benefits

- Miniature size
- Momentary or latching options
- Broad range of products

Typical Applications

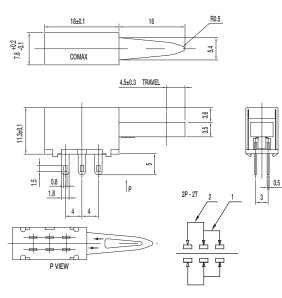
- Industrial
- Automotive
- Audio and visual equipment
- Telecommunications

How To Order

Part number list is shown below. For individual part details, please refer to the following.

Part Number (Part Description)	Product Details
PS-22105	DPDT, non-shorting, RT angle with metal frame

PS-22105 DPDT NON-SHORTING



SCHEMATIC

Specifications

CONTACT RATING: 0.3A @ 30 VDC INITIAL CONTACT RESISTANCE: 30 m ohms max. INSULATION RESISTANCE: 100 M ohms min. DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal. OPERATING LIFE: 10,000 cycles with load OPERATING FORCE: 400 ± 150 gf (3.92 ± 1.47N) TOTAL TRAVEL: 4.5 ± 0.3 mm OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SECC KNOB: POM (UL 94HB) CONTACT PLATE: Silver clad SPRING: SUS TERMINAL: Silver plated



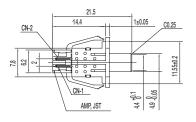
Dimensions are shown: mm Specifications and dimensions subject to change

How To Order

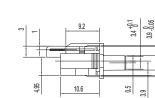
Part number list is shown below. For individual part details, please refer to the following pages.

Part Number (Part Description)	Product Details
PS-12C02-F NS	SPST non-shorting, mom
PS-32C02-F NS	1P3T non-shorting, mom, pitch: 7.2 mm
PS-42C02-F NS	1P4T non-shorting, mom, pitch: 7.2 mm

PS-12C02-F NS SPST NON-SHORTING





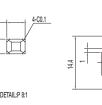


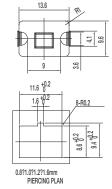
COMAX

CN-2

CN-1 SCHEMATIC







3.55±0.2

2.8

7.1±0.15

6.2±0.35

Specifications

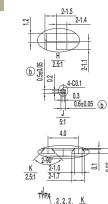
CONTACT RATING: 100 µ A @ 3 VDC min. / 10mA @ 5 VDC max INITIAL CONTACT RESISTANCE: 100 m ohms max. INSULATION RESISTANCE: 100 M ohms min. DIELECTRIC STRENGTH: 250 V AC (50-60 Hz) between open terminals and between the frame and terminal. OPERATING LIFE: 100,000 cycles with load OPERATING FORCE: 50 ± 15 gf (0.49 ± 0.147N) PRE-TRAVEL: 6.20 ± 0.35 mm OPERATING TEMPERATURE: -40°C to 85°C

Materials

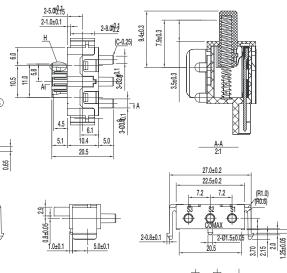
KNOB: POM (UL 94HB) COVER: PA (UL 94V-0) HOUSING: PA (UL 94V-0) SPRING: SUS TERMINAL: Silver plated

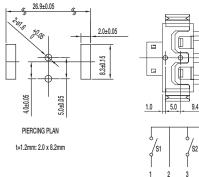
PS Series **Miniature Pushbutton Switches**

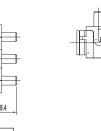
PS-32C02-F NS 1P3T NON-SHORTING



2-1.1





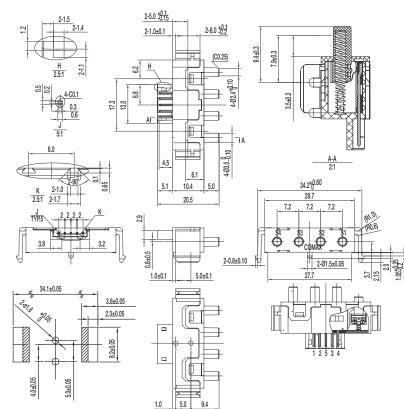


′S3

1 2 3 4



PS-42C02-F NS 1P4T NON-SHORTING



Specifications

CONTACT RATING: 100 µ A @ 3 VDC min. / 10mA @ 5 VDC max

INITIAL CONTACT RESISTANCE: 100 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 250 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 100,000 cycles with load

OPERATING FORCE: 80 ± 20 gf (0.784 ± 0.196N)

PRE-TRAVEL: 1.5 ± 0.3 mm

OVER-TRAVEL: 3.5 ± 0.3 mm

TOTAL TRAVEL: 5 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 65°C

Materials

KNOB: POM (UL 94HB) COVER: PA (UL 94V-0) HOUSING: PA (UL 94V-0) SPRING: SUS **TERMINAL: Silver plated**

Specifications

CONTACT RATING: 100 µ A @ 3 VDC min. / 10mA @ 5 VDC max INITIAL CONTACT RESISTANCE: 100 m ohms max. INSULATION RESISTANCE: 100 M ohms min. DIELECTRIC STRENGTH: 250 V AC (50-60 Hz) between open terminals and between the frame and terminal. OPERATING LIFE: 100,000 cycles with load OPERATING FORCE: 80 ± 20 gf (0.784 ± 0.196N) PRE-TRAVEL: 1.5 ± 0.3 mm OVER-TRAVEL: 3.5 ± 0.3 mm TOTAL TRAVEL: 5 ± 0.3 mm OPERATING TEMPERATURE: -20°C to 65°C

Materials

KNOB: POM (UL 94HB) COVER: PA (UL 94V-0) HOUSING: PA (UL 94V-0) SPRING: SUS TERMINAL: Silver plated

> Dimensions are shown mm Specifications and dimensions subject to change

PIERCING PLAN

PVA Short Stroke Key Switches

Features/Benefits

- Compact design
- Short stroke to latch
- Wide variety of actuator heights
- Adapted for medium power
 applications
- RoHS compliant and compatible

Construction

FUNCTION: Momentary, Push-Push CONTACT ARRANGEMENT: PVA1: 2 make contacts (DPST) PVA2: 2 change over contacts (DPDT) SWITCHING MODE: Non-shorting TERMINALS: PC pins¹

Mechanical

TOTAL TRAVEL / LATCHING TRAVEL: OA: 2,4 mm EE: 2,4 / 1,5 mm ELECTRICAL TRAVEL: 0.8 mm (1.1 for PVA2 OA H5) OPERATING FORCE: 1,2N; 1,7N; 3,5N

Process

SOLDERABILITY: Wave soldering, compatible with lead free soldering profile Hand soldering, 350°C for 3 seconds

Note: Specifications listed above are for switches with standard options. For information on specific and custom switches, please contact technical support using the "Ask a Specialist" option on the PVA product web page. \downarrow

Typical Applications

- Automotive (air conditioning, lighting)
- Industrial
- Control panel



Electrical

SWITCHING POWER MAX .: 3 W DC

SWITCHING VOLTAGE MAX .: 32 V DC

SWITCHING CURRENT MAX .: 100 mA DC*

DIELECTRIC STRENGTH (50 Hz / 1 min): 1000 V between open contacts, PVA2: 750 V

INSULATION RESISTANCE: $\geq 10^{10} \Omega$

BOUNCE TIME: \leq 3 ms

Environmental

OPERATING TEMPERATURE: -40°C to 85°C.²

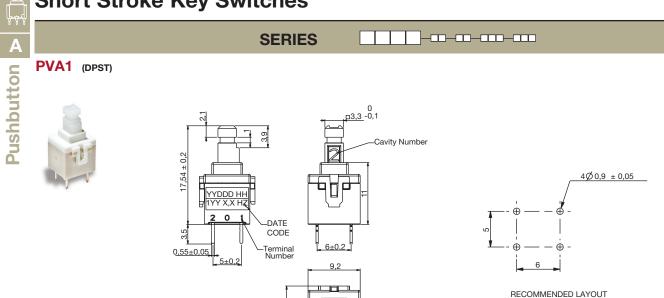
1) "Snap-in" contacts on request, Version SNA with pins bent inside (standard) 2) With button +70°C

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box. Some of the configurations may not be available or could require some development.

Switch				Ρ	V	A							V 2	
	Series PVA1 PVA2	1 2 make-contacts (DPST			· · · · · · · · · · · · · · · · · · ·									
	PVA2	Mechanical Fur OA Momentary EE Push-push	nction -	Tota H1 H2 H3 H4	I Height 17,5 mm 23 mm 20,5 mm 15 mm 13 mm (mor	nentary & PV/	A2 only)	Opera 1.2N 1.7N 3.5N	ting Force PVA1 only PVA2 only	Termina NONE SNA	ation Standard terminals Snap-in terminals			
Button									[
Buttons must Shipped in bu		separately.					Button							
Compatible	with H1 and	H3 actuato	or models (only.			PE PV*		RE GF BF		or —			
5 & K		24 may 19										Sp	Dimensions are ecifications and dimensior	shown: mm (inches) ns subject to change

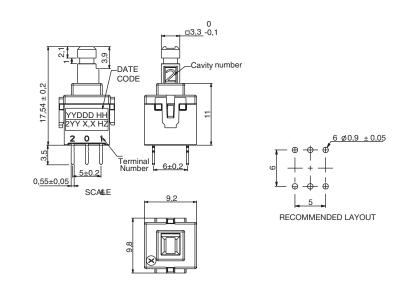
PVA Short Stroke Key Switches



9.8

PVA2 (DPDT)





[OPTION CODE	FUNCTION	ΟΑ	PVA1	PVA2 T	EE	PVA1	PVA2
	OA	Momentary		0	0 0 1		₹	∫0 1
	EE	Push-Push	1 °	2 0' 2'			1 ° · · · · · ° 2 1' ° · · · · · · · · · · · 2	
	EE	Push-Push	1 °	0' 2'	0'0 2'			

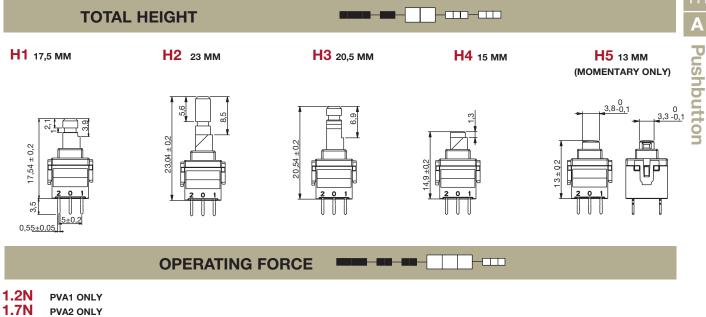
C&K

Dimensions are shown: mm Specifications and dimensions subject to change

PVA Short Stroke Key Switches

~~~~

A



**TERMINATION SNA with PVA1 SNA with PVA2** 2Ø0,9 ±0,05 +0,1 4Ø1  $\oplus$ 60  $\oplus$ Æ 0.4 +0,1 0 4Ø1 DETAIL A SEE DETAIL SEE DETAIL A

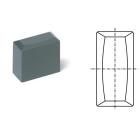
**BUTTONS** 

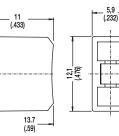
**PV** 

#### BUTTONS MUST BE ORDERED SEPARATELY. SHIPPED IN BULK.

PE

3.5N





| OPTION<br>CODE | COLOR |  |  |
|----------------|-------|--|--|
| RD             | Red   |  |  |
| GY             | Gray  |  |  |
| BK             | Black |  |  |
| WH             | White |  |  |



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

9,7 (.382)

\_\_\_\_7\_\_. (.276)

07,4 (291)

# KLS Illuminated SPDT/DPDT Pushbutton





#### Specifications

FUNCTION: SPDT, DPDT CONTACT ARRANGEMENT: N.C. MOUNTING TYPE: Straight PCB terminals

#### Mechanical

OPERATING LIFE: 1,000,000 cycles TOTAL TRAVEL: 2.2 mm OPERATING FORCE: 200  $\pm$  100 gf (SPDT) 300  $\pm$  150 gf (DPDT)

#### Electrical

CONTACT RATING; See table on contact material OPERATING LIFE: 200,000 cycles on both gold & silver plating DIELECTRIC STRENGTH: 1,000 V AC for 1 min. INSULATION RESISTANCE: 100 M $\Omega$  min. @ 500 VDC INITIAL CONTACT RESISTANCE: 50 m $\Omega$  max. (silver contact) 100 m $\Omega$  max/ (gold contact)

#### Features/Benefits

- Positive tactile feedback
- Momentary or Lock version
- SPDT & DPDT configuration
  - Gold or silver contact materials
- Choices of color on LED illumination
- 3 different CAP styles & sizes
- CAP with printed or etched logo\*

#### **Typical Applications**

- Audio/video system
- Vending machine
- Kiosks
- Network equipment

#### Materials

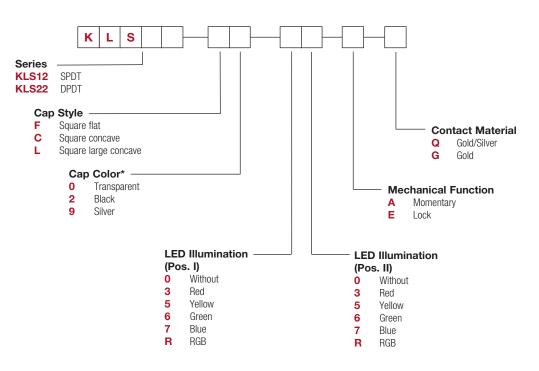
CASE: PA66+70G33L (Black) ACTUATOR: POM (White) CAP: PC SPRING: Black wire / Stainless steel SPRING PLATE: Phosphor bronze TERMINALS / CONTACT: Brass / Copper with silver or gold plated TERMINAL SEAL: Epoxy

Operating Environment OPERATING TEMPERATURE: -40°C to +85°C

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 it in the appropriate box.



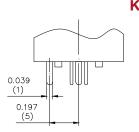
\* For CAP with logo or symbol, please contact your sales representative.

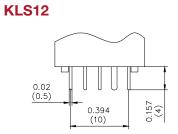
-2

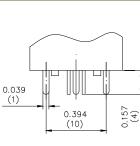
# NEW

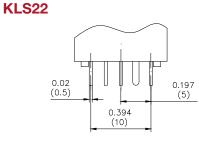
# KLS Illuminated SPDT/DPDT Pushbutton

# SERIES







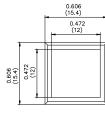


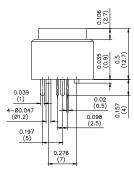
|              |              | SWITCH FUNCTION |        | CONNECTED TERMINALS |         |                                  |  |  |
|--------------|--------------|-----------------|--------|---------------------|---------|----------------------------------|--|--|
|              |              | POS. 1          | POS. 2 | POS. 1              | POS. 2  |                                  |  |  |
| NO.<br>POLES | MODEL<br>NO. |                 |        |                     |         | SCHEMATIC                        |  |  |
|              |              | ON              | (ON)   |                     | 1.0     | COMM                             |  |  |
| SP           | KLS12        | ON              | ON     | 1-3                 | 1-2     | SPDT N.C •3 2• N.O               |  |  |
| DP           | KLS22        | ON              | (ON)   | 1-3,4-6             | 1-2,4-5 | COMM COMM                        |  |  |
|              |              | ON              | ON     | 1-0,4-0             | , 2,4 0 | DPDT N.C •3 2• N.O N.C •6 5• N.O |  |  |

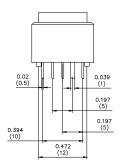
()=Momentary

CAP

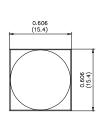
F SQUARE FLAT

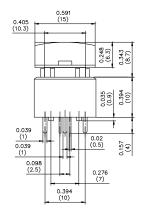


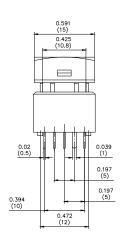




C SQUARE CONCAVE





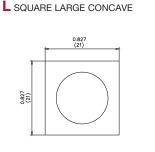


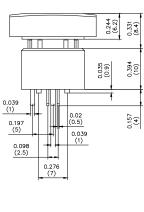


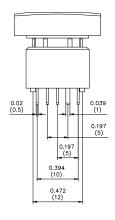
Dimensions are shown: mm Specifications and dimensions subject to change



# KLS Illuminated SPDT/DPDT Pushbutton





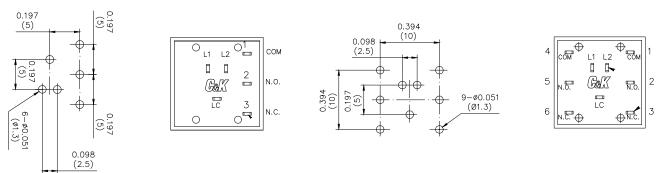


# **TERMINATION - PCB LAYOUT**

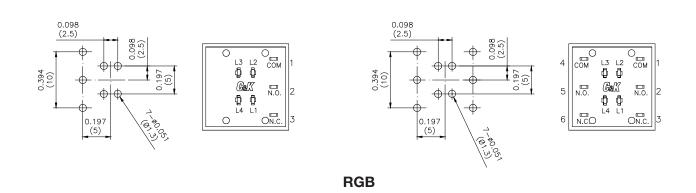
CAP













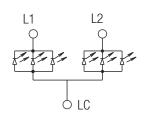
www.ckswitches.com

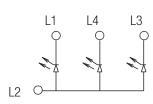
Dimensions are shown: Inches (mm) Specifications and dimensions subject to change

First Angle Projection



# LED CIRCUIT





**DUAL COLOUR** 

RGB

## **CONTACT MATERIAL**

| OPTION CODE | CONTACT MATERIAL                                          | TERMINAL PLATING | RATING           |
|-------------|-----------------------------------------------------------|------------------|------------------|
| Q           | Copper / Gold <sup>1</sup><br>Brass / Silver <sup>2</sup> | Silver           | 25VDC<br>500 mA  |
| G           | Copper, Gold                                              | Copper, Gold     | 28 VDC<br>100 mA |

<sup>1</sup> Movable contact

<sup>2</sup> Stationary contact



8 Jul 20

C&K

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

# PLP16 Series Panel Mount LED Sealed Pushbutton Switch

## Features/Benefits

- Illuminated & non-illuminated type
- Momentary or lock version
- IP65 or IP40 sealed
- 1,000,000 life cycle •
- Choices of colors on LED illumination
- Various actuator sizes and styles
- Withstand high shock and vibration application

#### Specifications

FUNCTION: SPDT or DPDT CONTACT ARRANGEMENT: N.O. AND N.C. MOUNTING TYPE: Threaded front panel mount

#### Mechanical

OPERATING LIFE: Momentary 1,000,000 cycles Lock 100,000 cycles TOTAL TRAVEL: 1.2 ± 0.3 mm **OPERATING FORCE: 3.0 max.** 

#### Electrical

CONTACT RATING: Ith 5A / 250 VAC 3A / 250 VAC 1A / 30 VDC OPERATING LIFE: Momentary 100,000 cycles Lock 50,000 cycles DIELECTRIC STRENGTH: 2,000 V RMS @ sea level INSULATION RESISTANCE: 100 MΩ min. @ 500 VDC

INITIAL CONTACT RESISTANCE : 50 mΩ max, initial value

# **Typical Applications**

- Industrial control panel
- Off-road transportation
- Machine and equipment
- Production control indicator





NEW

#### **Materials**

**BUSHING: PEI** BASE / LED holder: PBT ACTUATOR: PC INTERNAL ASSEMBLY: POM / PC SPRING: Steel (SUS304) SEALING / O-ring: Silicone TERMINALS: Brass, Gold over Nickel plated CONTACT: Phosphorus Bronze, Silver plated

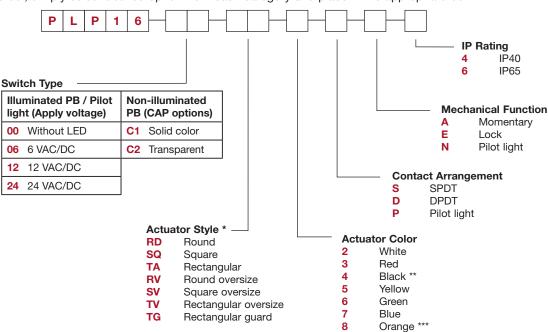
#### **Operating Environment**

OPERATING TEMPERATURE: -25°C to 55°C SEALING / PROTECTION: IP65 or IP40

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

#### **Build-A-Switch**

To order, simply select desired option from each category and place in the appropriate box.



\* Pilot light & C2 CAP available on RD, SQ, or TA actuator style only \*\* For C1 CAP only

<sup>\*\*\*</sup> Not available on C1 CAP



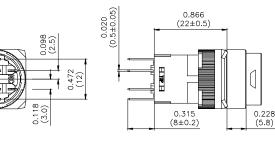
Dimensions are shown: Inches (mm) Specifications and dimensions subject to change

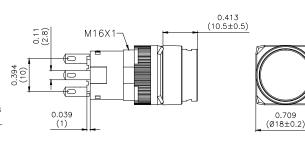


## **STANDARD VIEW / SWITCH TYPE**

#### ILLUMINATED Ø 5/8" (16 MM)

Pushbutton >





SQ SQUARE

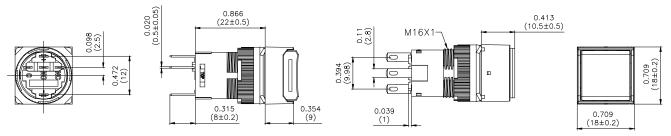
0.354

(9)

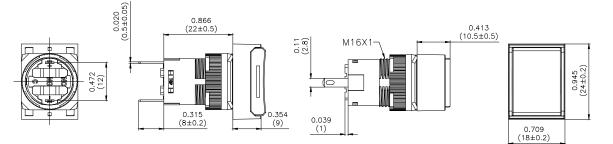
**RV** ROUND OVERSIZE

0.413 (10.5±0.5)

#### PUSHBUTTON Ø 5/8" (16 MM)



#### PILOT LAMP Ø 5/8" (16 MM)



## **ACTUATOR STYLE / CAP SIZE**

109

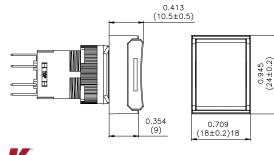
HTALH

0.228 (5.8)

0.457 (11.6±0.5)

0.413 (10.5±0.5) 0.228 (5.8) 0.709 (Ø18±0.2)





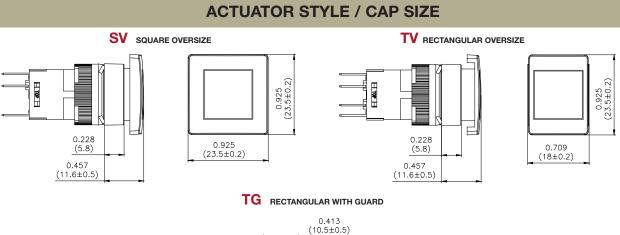


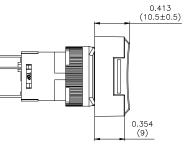
#### Dimensions are shown: Inches (mm) Specifications and dimensions subject to change

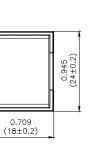
0.925 (Ø23.5±0.2) 0.709 (18±0.2)

0.709 (18±0.2)

# PLP16 Series Panel Mount LED Sealed Pushbutton Switch







NEW

#### **CONTACT ARRANGEMENT** S SPDT D DPDT P PILOT LIGHT 3 (6) Q\_9 PUSHBUTTON (5) 4 LED LED LED ( =ILLUMINATED 24 (5)-<sup>9</sup> ŧ Œ E **MOUNTING HOLES LAYOUT ROUND / SQUARE** RECTANGULAR **OVERSIZE ROUND & SQUARE** (PLUS FULL GUARD & OVERSIZE) 0.709 [18 MIN] 0.709 (18 MIN) 0.945 (24 MIN) 0.945 (24 MIN) 0.709 (18 MIN) 1, 5, 6 , 1, 6 , 1, 6 00,00 00,00 00,00 0.945 (24 MIN)

8 Nov 21

**LED - LAMP RATING** 

| Voltage Range                           |    | 6V AC/DC ± 5%                                                                           | 12V AC/DC ± 10% | 24V AC/DC ± 10% |  |
|-----------------------------------------|----|-----------------------------------------------------------------------------------------|-----------------|-----------------|--|
| Rated Voltage                           |    | 6V AC/DC                                                                                | 12V AC/DC       | 24V AC/DC       |  |
| Current Draw                            | DC | 8 mA                                                                                    | 8 mA            | 8 mA            |  |
|                                         | AC | 9 mA                                                                                    | 9 mA            | 9 mA            |  |
| Lamp Base Color / Lamp Body Resin Color |    | Illumination color / Porcelain white                                                    |                 |                 |  |
| Life (reference value)                  |    | 50,000 hours (brightness of LED lamp will half of the initial value when using DC only) |                 |                 |  |

## **ACCESSORY ORDERING INFORMATION**

#### LED LAMP

Pushbutton >

|       | Rated Voltage | Ordering Code |  |
|-------|---------------|---------------|--|
|       | 6V AC/DC      | PL06X *       |  |
| • • • | 12V AC/DC     | PL12X *       |  |
|       | 24V AC/DC     | PL24X *       |  |

\* X = choice of LED color

| x | Color  |
|---|--------|
| ^ | 00101  |
| 2 | White  |
| 3 | Red    |
| 5 | Yellow |
| 6 | Green  |
| 7 | Blue   |
| 8 | Orange |

#### SWITCH PROTECTIVE GUARD FOR IP65 (180° SPRING RETURN COVER)#

ROUND PCS651 SQUARE PCS652





RECTANGULAR PCS653



#### SWITCH PROTECTIVE GUARD FOR IP40 & IP65 #

| Rated | Cover<br>Opening | For Actuator<br>Type | Ordering<br>Code | Rated      | Cover<br>Opening | For Actuator<br>Type | Ordering Code |
|-------|------------------|----------------------|------------------|------------|------------------|----------------------|---------------|
| IP40  | 90°              | Round / Square       | PC401            | IP65       | 90°              | Round / Square       | PC654         |
|       |                  | Rectangular          | PC402            |            |                  | Rectangular          | PC655         |
| 8     | 180°             | Round / Square       | PC403            |            | 180°             | Round / Square       | PC656         |
|       |                  | Rectangular          | PC404            | $\bigcirc$ |                  | Rectangular          | PC657         |

# Refer to spec for panel cutout dimensions and mounting instruction



# **Mouser Electronics**

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

C&K Switches:

894102000 894103000 894101000 894107000 894105000 894106000 894109000 894104000