

## MINIATURE KEYBOARD SWITCHES

IBS MINIATURE SWITCHES  
SERIES 98000R

Momentary IBS switches provide cost-effective versatility for a wide range of electrical/electronic applications including switching analog and digital signals in business systems, public address, test instruments, medical, EDP (computer), input devices and peripheral equipment, local area network, telecommunication, digital transmission equipment, telephone systems and attachments and calculators. Convenient modular design allows quick assembly to PC boards. These switches are also available in multiple station assemblies (see page 308).

## SPECIFICATIONS

## MECHANICAL

**Switch Actuation:** Momentary

**Plunger Travel:** .144" (3.66 mm).

**Actuation Force (Full Travel):** 12-15 ounce (340-425 grams).

**Life:** 1 million operations.

## ELECTRICAL

UL approved at .25 A @ 28V DC and .125 A @ 125V AC

## MATERIALS

**Housing:** Molded thermoplastic UL 94V-0

**Plunger:** Molded thermoplastic UL 94V-0.

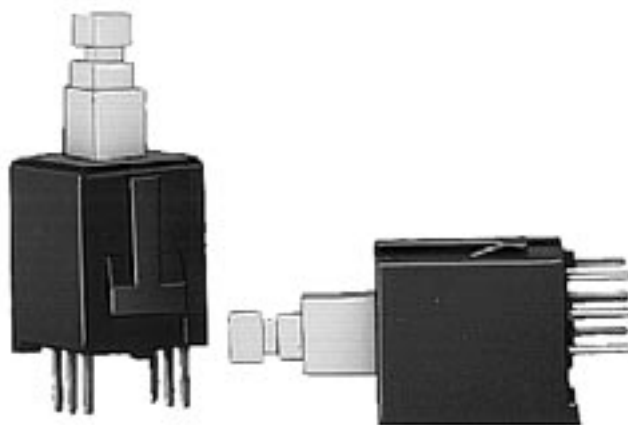
**Contactors:** Copper alloy.

**Terminals:** Copper alloy, solder-plated.

**Contact Surfaces:** Gold-plated.

## MOUNTING

Switches have .157" (4 mm) long PC terminals for mounting on single- or double-sided PC boards up to .094" (2.4 mm) thick on 0.394" (10 mm) minimum centers in rows or arrays. 0.394" (10 mm) PC terminals available on special order. Rugged molded-in standoff legs provide stable mounting and clearance for PC board cleaning.



## ORDERING STANDARD SWITCHES

Order switches and pushbuttons by part numbers from table.

## PART NUMBERS

Part No. <sup>1</sup>	Description	Circuit	Dim. A
982A01R	Momentary	1-A	.157" (4 mm)
982A03R		1-C	
982A06R		2-C	

<sup>1</sup> Order pushbuttons separately.

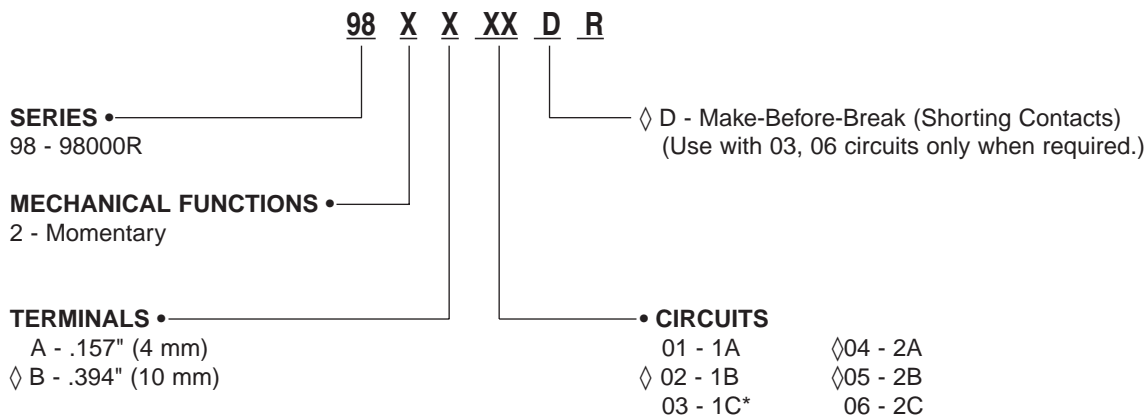
## ORDERING SPECIAL SWITCHES

Contact your Switchcraft representative with full specifying details.

## SPECIAL ORDER FEATURES

- Other circuitry - 1B, 2A or 2B
- Longer terminals - .394" (10 mm) long.

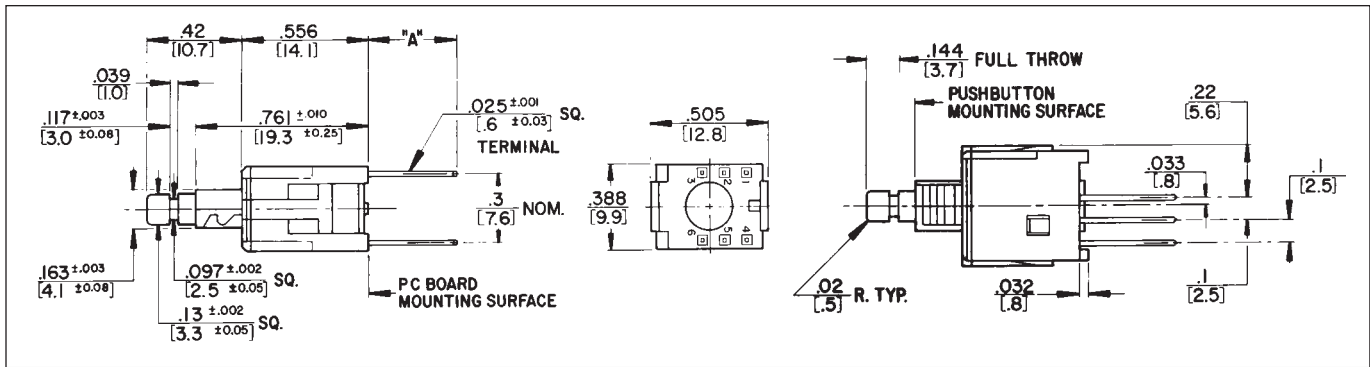
## IBS SWITCH CATALOG NUMBERING SYSTEM



◇ Special order only; contact Switchcraft for price and delivery.

\* Non-shorting (break-before-make) contacts

DIMENSIONS ARE FOR REFERENCE ONLY Inch  
(mm)

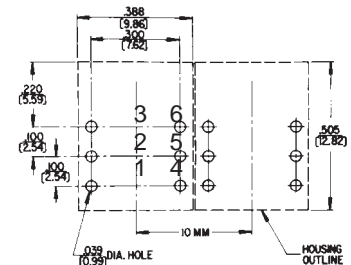


## TERMINAL FUNCTION BY TERMINAL NUMBER

	First Pole <sup>1</sup>			Second Pole		
Circuit	N.O.	N.C.	Common	N.O.	N.C.	Common
1-A	3	-	2	-	-	5*
1-B	-	1	2	-	-	5*
1-C	3	1	2	-	-	5*
2-A	3	-	2	6	-	5
2-B	-	1	2	-	4	5
2-C	3	1	2	6	4	5

\*Pin 5 is used as a support pin for switch mounting and has no electrical connection. 1. N.O.= normally open; N.C.= normally close.

**RECOMMENDED  
PC BOARD LAYOUT  
(.300 x .100)  
(Component Side)**



## KEYBOARD SWITCH PUSHBUTTONS

Pushbuttons designed for IBS switches are available in white, black, red, blue, and gray. Other colors are available on special order. Pushbutton faces are concave for operator convenience and can be mounted either horizontally or vertically. Pushbuttons must be ordered separately, but may be factory installed, if desired, at extra cost.





## PART NUMBERS

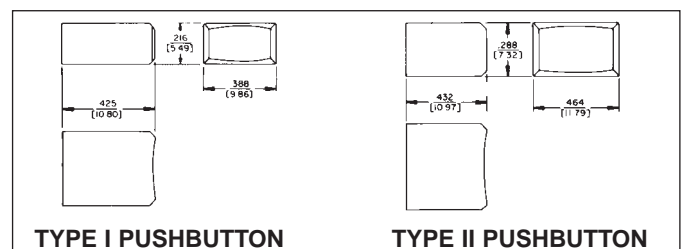
Type I	Type II	Color	Type I	Type II	Color
P2936	P2951	White	P2941	P2956	Blue
P2937	P2952	Black	P2942	P2957	Gray
P2938	P2953	Red	◇P2943	◇P2958	Brown
◇P2939	◇P2954	Yellow	–	◇P2979	Cream
◇P2940	◇P2955	Green	–	◇P2992	Tangerine

◆ Special order only; contact Switchcraft for price and delivery.

## LEGENDS

Engraved letters and numbers are available on special order.  
A-Z, ON and OFF in Condensed Block typeface are available.  
Other custom legends may be supplied (please inquire).  
Refer to drawing and chart for legend data.

Character Height inches (mm)		Horizontal Mount (Char. Max.)		HORIZONTAL MOUNT	
		I	II	 <p>LEGEND AREA</p>	
1/8" (3.175)		3	4		
3/32" (2.381)		4	5		
5/64" (1.984)		4	5		
Character Height inches (mm)		Vertical Mount (Char. Max.)		VERTICAL MOUNT	
		I	II	 <p>LEGEND AREA</p>	
1/8" (3.175)		1	1		
3/32" (2.381)		2	2		
5/64" (1.984)		2	3		



DIMENSIONS ARE FOR REFERENCE ONLY Inch  
(mm)

## UNISWITCH® SWITCHES

## SERIES US - Non-illuminated,

## SERIES LUS - Illuminated

Cost-effective Uniswitch switches are lighted or non-lighted momentary switches featuring snap-in mounting in a single hole and a choice of solder/screw (#5-40), solder/quick-connect (AMP FASTON® 110) 60967-1, or stand-off PC terminals. Molded housing protects internal parts, and bezel functions as built-in escutcheon. Series LUS accepts T 1-3/4 bi-pin lamps. (Lamps not included.)

®FASTON is a registered trademark of AMP INC.

## MOUNTING

"Snap-in" mounting is in .617" (15.67 mm) minimum square hole - for row or matrix mounting. Panel thickness: .047" (1.19 mm) to .266" (6.76 mm) maximum. To mount, simply press switch into panel; "Adjusto-Clip" locking tabs engage panel and hold switch securely. Behind panel distance is 1.312" (33.32 mm) minimum.

## SPECIFICATIONS

**Switch Housing:** Molded plastic, charcoal gray only.

**"Adjusto-Clip":** Copper alloy.

**Contactor:** Copper alloy plated. Form 1-A rated: 250 mA, 30 W maximum, AC, non-inductive load.

**Terminals:** Copper alloy, silver-plated.

**Pushbuttons:** Molded plastic in 8 colors.

**Operating Force:** 12 - 16 ounce (340-454 grams).

## SPECIAL ORDER FEATURES

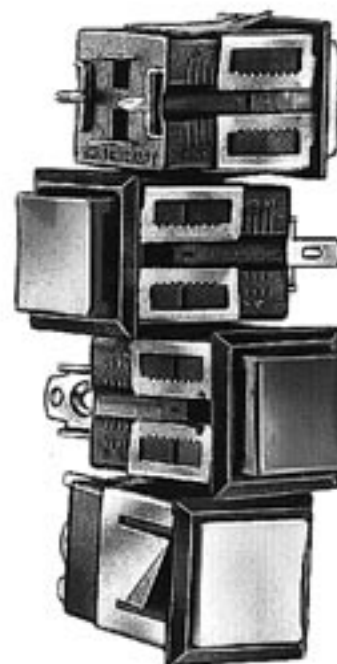
- Other contactor platings.
- Engraved legends (See page 270).
- Other pushbutton colors.
- "Adjusto-Clips" set to positions 2, 3, 4, or 5.

## PART NUMBERS (Order switches and pushbuttons separately)

Terminal Type/Part Number; Series US			Terminal Type/Part Number; Series LUS <sup>1</sup>		
Solder/ Screw	Printed Circuit	Solder/ Quick-Connect	Solder/ Screw	Printed Circuit	Solder/ Quick-Connect
US001	US001PC	US001ST	LUS001	LUS001PC	LUS001ST

1. Lamp not included.

◇ Special order only; contact Switchcraft for price and delivery.



## "ADJUSTO-CLIP" MOUNTING

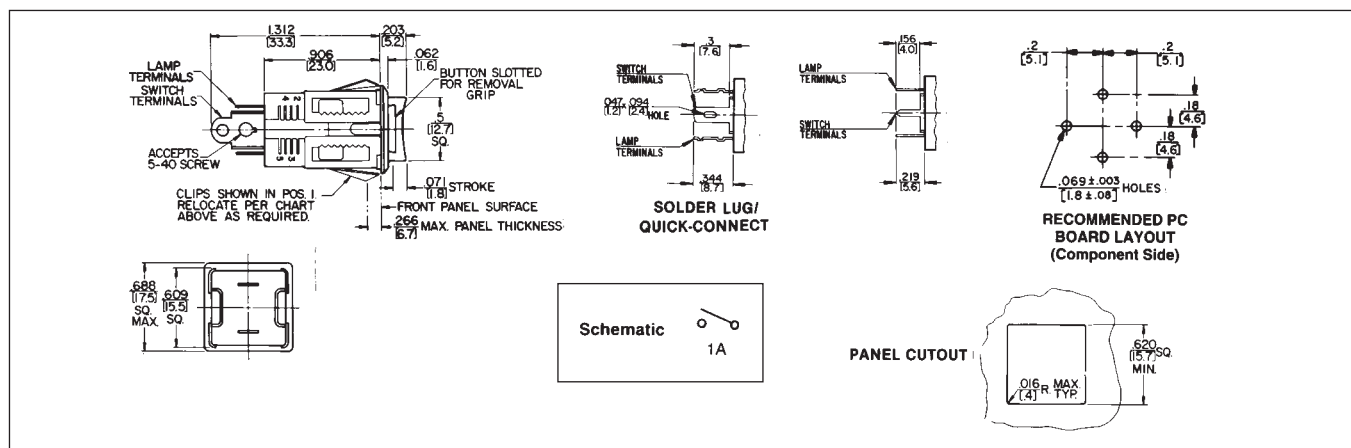
Position Number	Panel Thickness Inch (mm)		Position Number	Panel Thickness Inch (mm)	
	Min.	Max.		Min.	Max.
1*	.047 (1.2)	.078 (2.0)	4	.188 (4.8)	.219 (5.6)
2	.094 (2.4)	.125 (3.2)	5	.234 (6.0)	.266 (6.8)
3	.141 (3.6)	.172 (4.4)			

\* "Adjusto-Clips" normally installed in this position unless otherwise specified.

## PUSHBUTTONS\* (Pushbuttons ordered separately from switches.)

Part Number	Color	Part Number	Color
P23491	Red	P23495	White
P23492	Black	P23497	Orange
P23493	Green	P23498	Yellow
P23494	Blue	◇P234913	Amber

\* Extra replacement pushbuttons can be ordered separately.



DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## BOX SWITCH® SWITCHES



**BXR013PC**

## SERIES BXR

Economical momentary, non-illuminated switches feature "Adjusto-Clip" snap-lock mounting and selection of switching. Bezel trims mounting and enclosed construction protects against dust, dirt, and physical damage. Color pushbuttons have concave face for positive "feel".

## MOUNTING

Front mount in .620" (15.75 mm) minimum square hole. Solder lug/quick-connect terminals accept AMP FASTON® 110 terminals; PC terminals fit boards up to .281" (7.14 mm) thick. "Adjusto-Clip" permits mounting in panels from .047" (1.19 mm) to .281" (7.14 mm) thick.

<sup>®</sup>FASTON is a registered trademark of AMP INC.

## SPECIFICATIONS

**Housing:** Molded plastic, charcoal gray only.

**Pushbutton:** Molded plastic; red, black, green, and white standard.

**“Adjusto-Clip” Mounting Frame:** Copper alloy, plated.

**Contact Springs:** Copper alloy, plated.

**Contacts:** Integral, copper alloy, plated.

1-A, 1-C, 2-C, or 2-A + 2-C

**Switching:** 250 mA, 30 W max., AC, non-inductive load.

**Terminals:** Copper alloy, silver-plated.

## SPECIAL ORDER FEATURES

- Other contact platings.
- Engraved legends (see page 270).
- Other pushbutton colors.
- “Adjusto-Clips” set to positions 2, 3, 4, or 5.

**SHOWN ACTUAL SIZE**



**Rear view, BXR056  
Solder Lug/Quick-Connect  
Terminals.**



**Rear view, BXR013PC  
PC Terminals.**

## PART NUMBERS

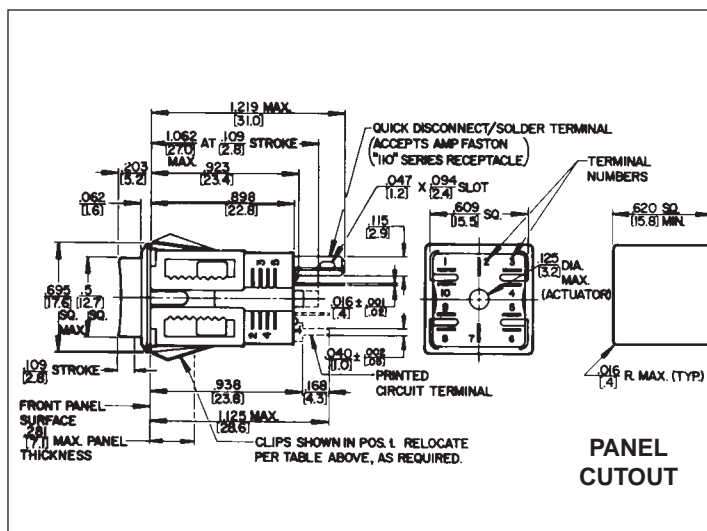
Pushbutton Color/Part Number				Circuits
Red	Black	Green	White	
Solder Lug/Quick-Connect Terminals				
BXR011 BXR013 BXR016 BXR0110	BXR021 BXR023 BXR026 ◇BXR0210	◇BXR031 BXR033 BXR036 ◇BXR0310	BXR051 BXR053 BXR056 ◇BXR0510	1-A 1-C 2-C 2-A + 2-C
PC Terminals				
◇BXR011PC ◇BXR013P BXR016PC ◇BXR0110PC	◇BXR021PC ◇BXR023P BXR026PC ◇BXR0210PC	◇BXR031PC ◇BXR033PC ◇BXR036PC ◇BXR0310PC	◇BXR051PC ◇BXR053PC ◇BXR056PC BXR0510PC	1-A 1-C 2-C 2-A + 2-C

◆ Special order only; contact factory for price and delivery.

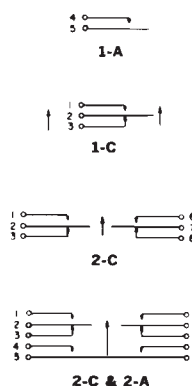
## “ADJUSTO-CLIP” MOUNTING POSITIONS

Position Number	Panel Thickness Inch (mm)	
	Minimum	Maximum
1*	.047 (1.2)	.094 (2.4)
2	.094 (2.4)	.141 (3.6)
3	.141 (3.6)	.188 (4.8)
4	.188 (4.8)	.234 (6.0)
5	.234 (6.0)	.281 (7.1)

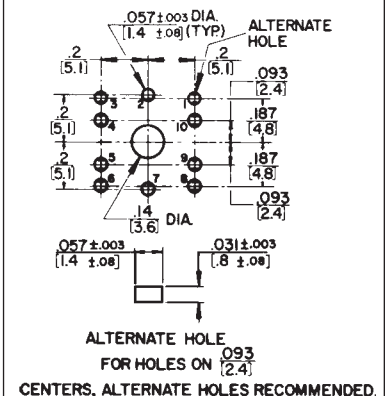
\* "Adjusto-Clips" normally installed in this position unless otherwise specified.



### SCHEMATIC



## RECOMMENDED PC BOARD LAYOUT



DIMENSIONS ARE FOR REFERENCE ONLY Inch  
(mm)

## BUTTON-SWITCH® SWITCHES



## SERIES 903, 913, 923, 933

These small momentary switches are completely enclosed in rugged metal housing. Front or rear-panel mount types offer 1-A, 1-B, 1-C, or 1-D switching. Red or black pushbuttons and solder terminals are standard. Series 903 and 913 are front mount in .469" (11.91 mm) diameter hole in panels up to .297" (7.54 mm) thick. Series 923 and 933 are rear mount in .250" (6.35 mm) diameter hole in panels up to .156" (3.96 mm) thick. Mounting hardware is supplied.

## SPECIFICATIONS

**Body:** Copper alloy, plated.

**Pushbutton:** Molded red or black plastic, integral with shaft.

**Insulation:** Rigid plastic.

**Springs:** Integral contacts, plated.

**Ratings:** 250 mA, 30 W maximum, AC, non-inductive load.

**Solder Terminals:** Copper alloy, silver-plated.

**Locknuts:** Copper alloy, plated.

Series 903, 913: P-1053-1.

Series 923, 933: P-1150-1.

**Lockwasher:** Series 903, 913: Steel, P-1060-3

**Flat Washer:** Series 923, 933: Steel, plated, S-1790-1

## SPECIAL ORDER FEATURES

- Other pushbutton colors.
- Legends.

## PART NUMBERS

Panel Mounting	Pushbutton Color/Part Number		Circuit	Schematic <sup>1</sup>
	Red	Black		
Front	903	913	1-C	
	◇903D	◇913D	1-D	
Rear	923	933	1-C	
	◇923D	◇933D	1-D	

1. Circuits C or 1-D can be wired for either 1-A or 1-B switching

◇ Special order only; contact Switchcraft for price and delivery.

## TINI-SWITCH® SWITCHES



## SERIES 950, 960

Momentary Tini-Switch® switches are miniaturized versions of Littell-Switch® switches (see page 274 for construction details). .25 A contacts are intended for low-power switching where contact resistance is not critical. Red or black pushbuttons, solder lug terminals and choice of 1-A, 1-B and 1-C switching is standard.

## MOUNTING

Switches mount from rear in .250" (6.35 mm) diameter hole in panels up to .094" (2.39 mm) thick. Mounting washers and locknuts are supplied.

## SPECIFICATIONS

**Bushing:** Copper alloy, plated.

**Pushbutton:** Molded plastic, integral with shaft.

**Insulation:** Rigid plastic.

**Springs:** Copper alloy.

**Contacts:** Integral contacts are standard. .25 A, 30 W maximum, AC, non-inductive load.

**Washer:** Steel, plated, S17901.

**Locknut:** Copper alloy, plated, P11501.

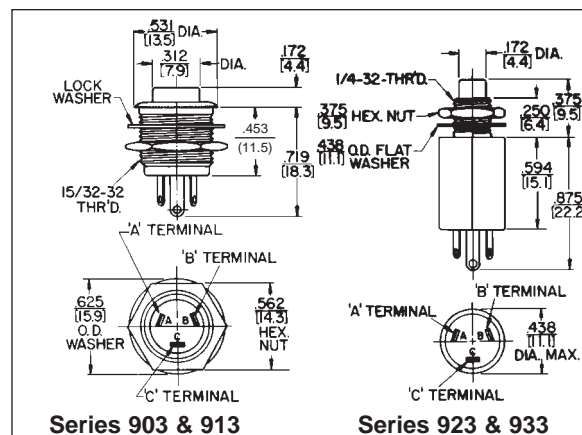
## SPECIAL ORDER FEATURES

- Other pushbutton colors.
- Legends.

## PART NUMBERS

Pushbutton Color/Part Number		Circuit	Schematic
Red	Black		
951	961	1-A, SPST, (N.O.)	
◇952	◇962	1-B, SPST, (N.C.)	
953	963	1-C, SPDT	

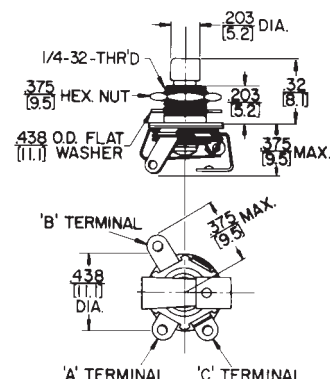
◇ Special order only; contact Switchcraft for price and delivery.



Series 903 &amp; 913

Series 923 &amp; 933

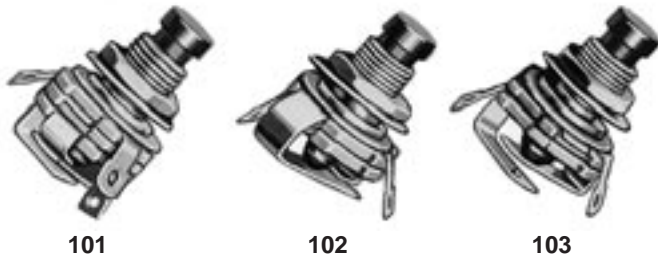
Series 950 &amp; 960



DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$



## LITTEL-SWITCH® SWITCHES

**SERIES 100, 100S, 200, 200S**

Momentary switches feature leaf springs, insulating spacers, notched insulating washers and plated copper alloy bushing assembled into a rugged, reliable, long-life switch for limited space applications. Series 100 and 200 have integral .25 A contacts intended for low power switching where contact resistance is not critical. Series 100S and 200S have 3 A fine silver contact. Red and black pushbuttons, solder lug terminals and choice of 1-A, 1-B or 1-C switching are standard. Shaft and pushbutton molded as one piece. Captive shaft extends through bushing, actuated leaf springs. Notched phenolic washers insulate springs and interlock all members, eliminating possibility of springs shifting. All springs are insulated from bushing.

**MOUNTING**

Switches mount from rear in panels up to .250" (6.35 mm) thick in .375" (9.52 mm) diameter holes. Locknuts and washers are supplied.

**LEGENDS**

Switchcraft offers a wide variety of engraved legends on special order. Contact Switchcraft for details.

**PART NUMBERS**

Pushbutton Color/Part Number		Circuit	Schematic
Red	Black		
101	201	1-A, SPST, (N.O.)	1-A
◇101S	◇201S		
◇102	202	1-B, SPST, (N.C.)	1-B
◇102S	◇202S		
103	203	1-C, SPDT	1-C
◇103S	◇203S		

◇ Special order only; contact Switchcraft for price and delivery.

"S" at the end of part number indicates 3H rated fine silver contacts.

**SPECIFICATIONS**

**Bushing:** Copper alloy, plated.

**Pushbutton:** Molded plastic, integral with shaft.

**Insulation:** Rigid plastic.

**Springs:** Copper alloy.

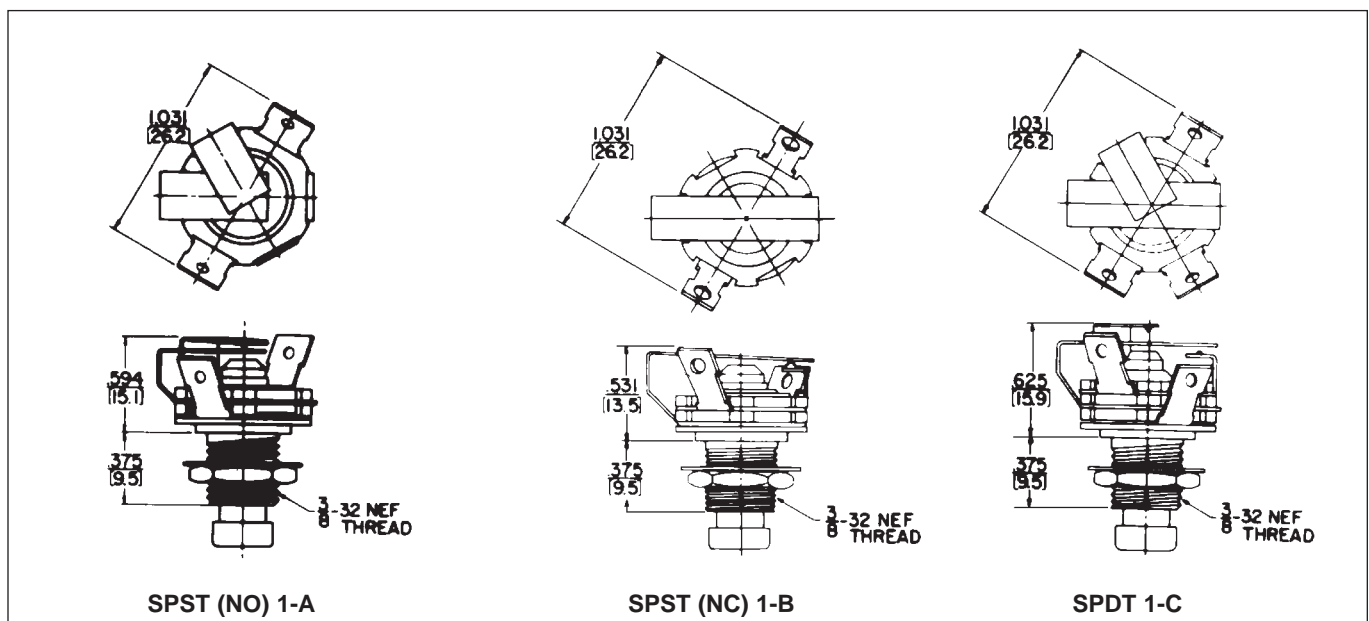
**Contacts:** Integral contacts are standard. (Series 100, 200) .250 A, 30 W maximum, AC, non-inductive load. Riveted silver contacts (Series 100S, 200S); 3A, 300 W maximum AC, non-inductive load.

**Washer:** Steel, plated, S10221.

**Locknut:** Copper alloy, plated, P10001.

**SPECIAL ORDER FEATURES**

- Other pushbutton colors.
- Legends.
- Welded crossbar palladium contacts for dry circuit.



DIMENSIONS ARE FOR REFERENCE ONLY Inch  
(mm)



**CORD-SWITCH® CORD SWITCHES**

**SERIES E900, ED900, EP900**

Momentary cord (pendant) switches can be specified with red or black pushbuttons, 1-C or 1-D switching, solder terminals and metal handle (Series E900), plastic handle (Series EP900), or metal handle with clamp and strain relief (Series ED900).

**SPECIFICATIONS**

(See page 273 for switch specs.)

**SERIES E900, EP900:**

**Housing:** Series E900 - Copper alloy, plated.

Series EP900 - Molded black plastic.

**Switch Bushing:** Copper alloy, plated.

**Insulation:** Rigid plastic.

**SERIES ED900:**

**Housing:** Die-cast zinc, plated.

**Switch Body and Insert Bushing:** Copper alloy, plated.

**Insulation:** Rigid plastic.

**Cable Relief Bushing:** Black thermoplastic rubber.

**Pressure Plates:** Stainless steel.

**Cable Relief Screws:** Steel, plated.

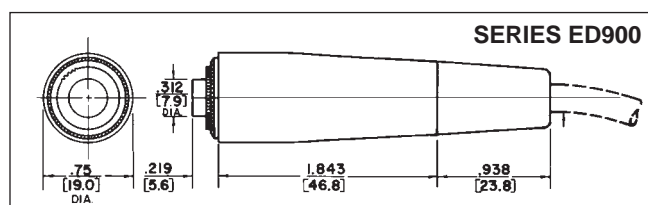
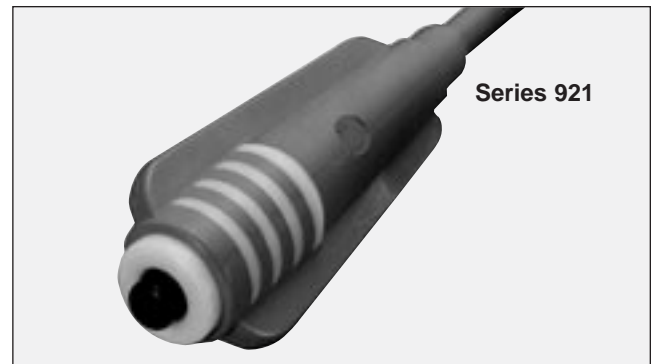
**SPECIAL ORDER FEATURES**

- Other pushbutton colors.
- Custom legends

**PART NUMBERS (examples)**

Pushbutton Color/Part Number		Maximum Cable Outside Diameter	Circuit
Red	Black		
E903	E913	.375" [9.5 mm]	1-C
ED903	ED913	.375" [9.5 mm]	
EP903	EP913	.250" [6.4 mm]	
◇E903D	◇E913D	.375" [9.5 mm]	1-D
◇ED903D	◇ED913D	.375" [9.5 mm]	
◇EP903D	◇EP913D	.250" [6.4 mm]	

◇ Special order only; contact Switchcraft for price and delivery.


**CORDETTE® CORD SWITCHES**

**SERIES 921**

Momentary, 0.5 A switching combined with 1-piece molded plastic body qualifies Cordette for all types of commercial and industrial usage. The 921 has a phono jack receptacle and a phono jack in handle to fit standard phono plugs. The 921K is molded with 6' (1.8 meter), 2-conductor cable (internal cable clamp).

**SPECIFICATIONS**

**Body:** 921 and 921K - Molded gray plastic with contrasting trim and gray pushbutton.

**Switch Contacts:** Integral copper alloy, plated, form 1-A, 0.5 A, 50 W maximum, AC, non-inductive load.

Not recommended for high voltage circuits.

**Insulation:** Thermoplastic UL 94V-0.

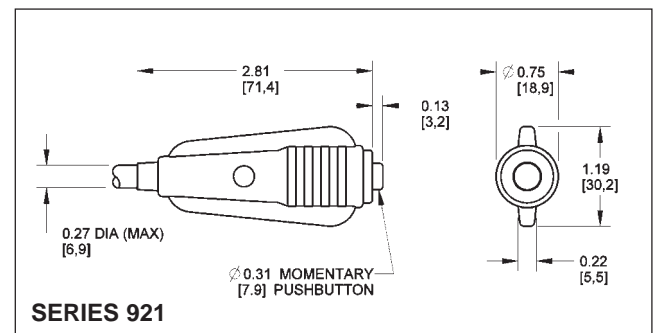
**Phono Jack Terminations:** (921): Standard phono jack, similar to 3501FP (see Jacks and Plugs Section).

**SPECIAL ORDER FEATURES**

- 1-B, 1-C, or 1-A + 1-B switching.
- Red, green, blue, white or yellow pushbuttons.
- Legends (see page 270).
- Other body colors.
- ST-900 - Custom-molded to any of a large selection of cables (See Molded Cable Assembly Section). Also many cable terminations, i.e., phone plugs, extension jacks, phono plugs, spade lugs, alligator clips, stripped and tinned leads, etc.

**PART NUMBERS**

Part Number	Description
921	Cordette switch, phono jack termination.
921K	Same as 921, except with 6' (1.8 meter), 2-conductor cable with stripped and tinned leads.



DIMENSIONS ARE FOR REFERENCE ONLY  
 Inch  
 (mm)



## PUSH-LITE® SWITCHES AND INDICATORS

Completely enclosed, lighted pushbutton switches feature long-life, highly-reliable, leaf-springs. Available with or without barriers, full or split-face display. Mounts with clamp-type bracket; no screws, washers or nuts needed. Can be mounted in vertical or horizontal rows and in matrixes. Accepts standard T 1-3/4 flange-base lamp (lamp not furnished with switch) in either 6 V to 28 V rating. Specify 1 lamp for single lamp type or 2 lamps for twin-lamp type

when redundant or split-face lighting is required. Barriers and colored filter snap-inserts optional (order separately). Mounting hole (w/o barriers): 1" (25.4 mm) x .875" (22.23 mm); (w/barriers) 1.188" (30.16 mm) x .875" (22.23 mm). Panel thickness: .125" (3.18 mm) maximum. Behind panel depth 1.75" (44.45 mm) (minus panel thickness).

## MOMENTARY

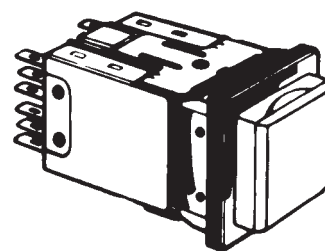
Part Number	Housing/ Pushbutton Color	Switching	AC Ratings (max.) non-inductive	Contacts	Circuits	Terminals
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## SINGLE LAMP

PL103205	Black/White	SPDT	2 A, 125 V	Palladium	1-C	Solder Lug
PL106205		DPDT			2-C	
PL112205		4PDT			4-C	
PL126205		DPDT			2-C	
PL403205	Gray/White	SPDT	2 A, 125V	Palladium	1-C	Solder Lug
PL406205		DPDT			2-C	
PL412205		4PDT			4-C	
PL706205		DPDT			2-C	
PL712205	Black/White	4PDT	2 A, 125 V		4-C	PC

## TWIN LAMP

PL203205	Black/White	SPDT	2 A, 125 V	Palladium	1-C	Solder Lug
PL206205		DPDT			2-C	
PL212205		4PDT			4-C	
PL226205		DPDT			2-C	
PL503205	Gray/White	SPDT	2 A, 125V	Palladium	1-C	Solder Lug
PL506205		DPDT			2-C	
PL512205		4PDT			4-C	
PL803205		SPDT			1-C	
PL806205	Black/White	DPDT	2 A, 125 V		2-C	PC
PL812205		4PDT			4-C	



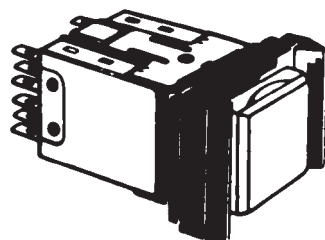
WITHOUT BARRIERS

## PUSH-LOCK/PUSH-RELEASE

Part Number	Housing/ Pushbutton Color	Switching	AC Ratings (max.) non-inductive	Contacts	Circuits	Terminals
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## SINGLE LAMP

PL103705	Black/White	SPDT	2 A, 125 V	Palladium	1-C	Solder Lug
PL106705		DPDT			2-C	
PL112705		4PDT			4-C	
PL123705		SPDT			1-C	
PL126705	Gray/White	DPDT	8 A, 125V	Silver	2-C	Solder Lug
PL403705		SPDT			1-C	
PL406705		DPDT			2-C	
PL412705		4PDT			4-C	
PL703705	Black/White	SPDT	2 A, 125 V	Palladium	1-C	PC
PL706705		DPDT			2-C	
PL712705		4PDT			4-C	



WITH BARRIERS

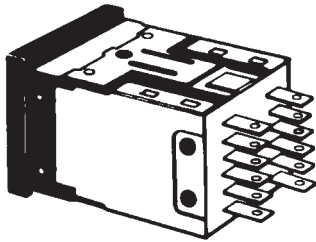
## TWIN LAMP

PL203705	Black/White	SPDT	2 A, 125 V	Palladium	1-C	Solder Lug
PL206705		DPDT			2-C	
PL212705		4PDT			4-C	
PL226705		DPDT			2-C	
PL506705	Gray/White	DPDT	8 A, 125V	Silver	2-C	Solder Lug
PL512705		4PDT			2-C	
PL803705		SPDT			4-C	
PL806705		DPDT			1-C	
PL812705	Black/White	DPDT	2 A, 125 V	Palladium	2-C	PC
		4PDT			4-C	

◇ Special order only; contact Switchcraft for price and delivery.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## PUSH-LITE® SWITCHES AND INDICATORS (continued)



### U.L. LISTED, MOMENTARY & PUSH-LOCK/PUSH-RELEASE

Part Number	Housing/ Pushbutton	Action¹	Switching	AC Ratings (max.) non-inductive	Contacts	Circuit	Listing	Terminals
-------------	---------------------	---------	-----------	---------------------------------	----------	---------	---------	-----------

#### SINGLE LAMP

◇26U1003	Black/White	M	SPDT	8 A, 125 V	Silver	1-C	UL	Solder Lug
◇26U1004		M	DPDT	8 A, 125V		2-C	UL	
◇26U1007		PL/PR	SPDT	8 A, 125V		1-C	UL	
◇26U1008		PL/PR	DPDT	8 A, 125 V		2-C	UL	

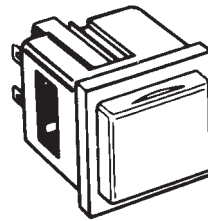
#### TWIN LAMP

◇26U1005	Black/White	M	SPDT	8 A, 125 V	Silver	1-C	UL	Solder Lug
◇26U1006		M	DPDT	8 A, 125V		2-C	UL	
◇26U1009		PL/PR	SPDT	8 A, 125V		1-C	UL	
◇26U1010		PL/PR	DPDT	8 A, 125 V		2-C	UL	

◇ Special order only; contact Switchcraft for price and delivery. **NOTE:** 1 M = Momentary; PL/PR = Push-Lock/Release

## SERIES PL9000 - PL® INDICATORS

Create unlimited combinations of rows and/or matrix arrays with or without Push-Lite switches. A perfect match for front panel appearance Push-Lite switches - but functions only as a lighted indicator. Mounts same as Push-Lite switches: behind panel depth 1.341" (35.55mm) maximum uses same lamp, color filter, snap inserts, light divider and optional mounting barriers as Push-Lite® switches.



Part Number	Description
<b>PL9105</b>	Black housing; uses 1 or 2 lamps. White screen.
◇PL9205	Same as PL-9105 except gray housing.

## PUSHBUTTON/INDICATOR SCREENS

Series PL500 Pushbuttons/Indicator Screens are available separately for use with Push-Lite switches or PL Indicators for in-the-field substitution and/or replacement.

Part Number	Color	Part Number	Color
<b>PL501</b>	Red	<b>PL508</b>	Yellow
<b>PL503</b>	Green	<b>PL512</b>	Clear
<b>PL504</b>	Blue	<b>PL513</b>	Amber
<b>PL505</b>	White		

## COLOR FILTER SNAP-INSERTS

Translucent plastic filters for special color coding in Push-Lite switch and PL Indicators. Use with white or clear pushbuttons.

SERIES PL300 - Full Display Color Filters	
Part Number	Color
<b>PL303</b>	Green
<b>PL305</b>	White
<b>PL308</b>	Yellow

## OPTIONAL MOUNTING BARRIERS

Molded plastic barriers separate Push-Lite switches, PL Indicators, or combinations of Push-Lite switches and PL Indicators and prevent accidental operation of adjacent switches. Series PL100: end barrier. Series PL200: center barrier. Two required between adjacently mounted switches. Push-Lite switch is shown with two PL102 end barriers installed.

Part Number	Description
<b>PL102</b>	End barrier, black
◇PL111	End barrier, gray
<b>PL202</b>	Center barrier, black
◇PL211	Center barrier, gray

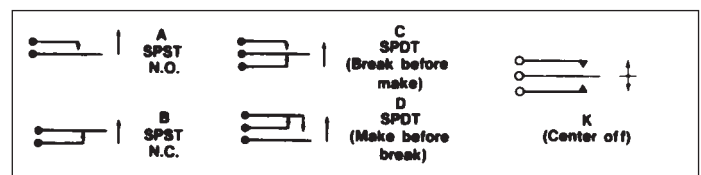
◇ Special order only; contact Switchcraft for price and delivery.

## LIGHT DIVIDER

Light divider for Push-Lite switch pushbuttons and PL Indicator screens; separates lighting from twin lamps. Order light divider for each switch or indicator specified where split-face lighting is desired. **Order PL551.**

### BASIC SCHEMATIC

Switch circuitry can be described as combinations of basic schematic circuits as shown below. N.O. means normally open; N.C. means normally closed.



The above are strictly electrical schematics and do not necessarily indicate relative solder lug positions.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

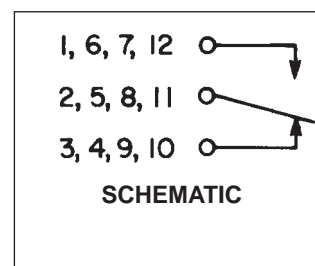
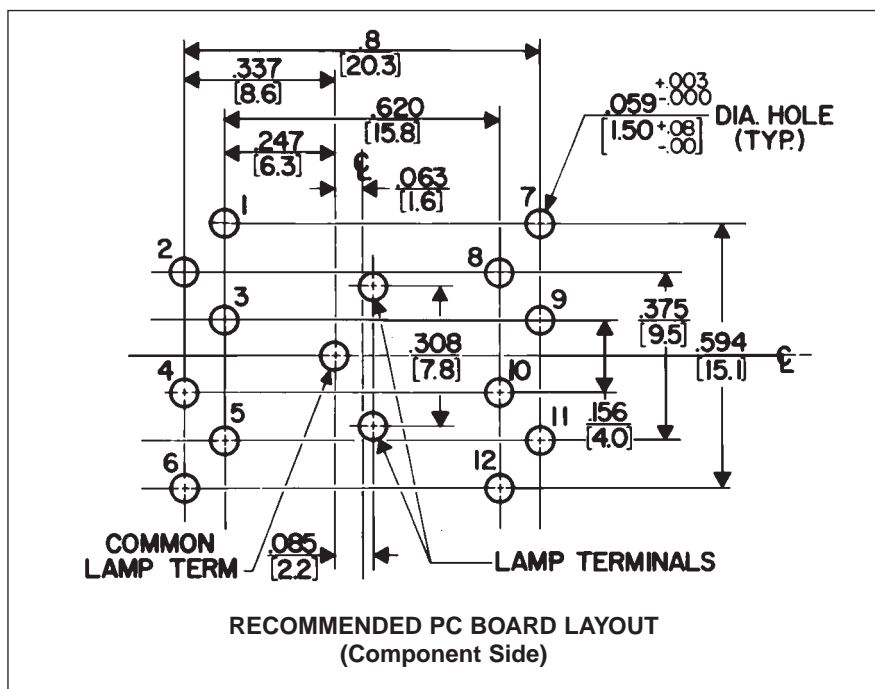
## PUSH-LITE® SWITCHES - PART NUMBERING SYSTEM

P L				
<b>SERIES</b> PL	<b>LAMP &amp; SWITCH HOUSING COLOR</b> 1 - Single lamp, Black housing 2 - Twin lamp, Black housing 3 - Non-illuminated, Black housing 4 - Single lamp, Gray housing 5 - Twin lamp, Gray housing 6 - Non-illuminated, Gray housing 7 - Single lamp, Black housing (PC terminals) 8 - Twin lamp, Black housing (PC terminals)	<b>CIRCUITRY</b> 03 - 1C 06 - 2C 09 - 3C 12 - 4C 23 - 1C (8A) 26 - 2C (8A) 29 - 3C (8A) 32 - 4C (8A)	<b>ACTION</b> 2 - Momentary 7 - Push-Lock/ Push-Release 9 - Momentary Silent*	<b>PUSHBUTTON COLOR</b> 01 - Red 03 - Green 04 - Blue 05 - White 08 - Yellow 12 - Clear 13 - Amber

\* Special order only. Contact Switchcraft.

### OPTIONS

Pushbutton/indicator screens, color filter snap-inserts, mounting barriers and lighted dividers can be specified separately for substitution/replacement; order from tables. Also, engraving of leg-ends is available; contact Switchcraft.

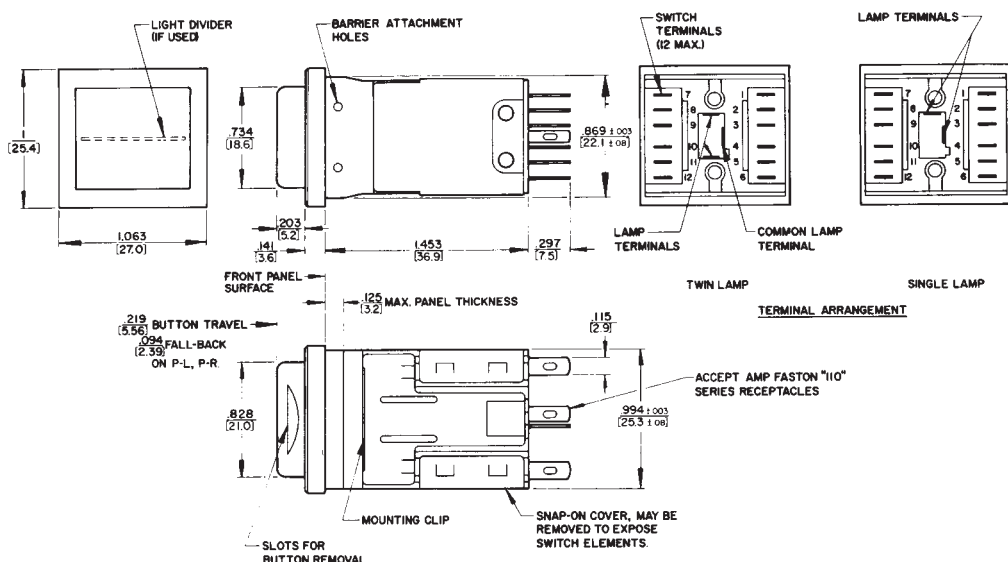


DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

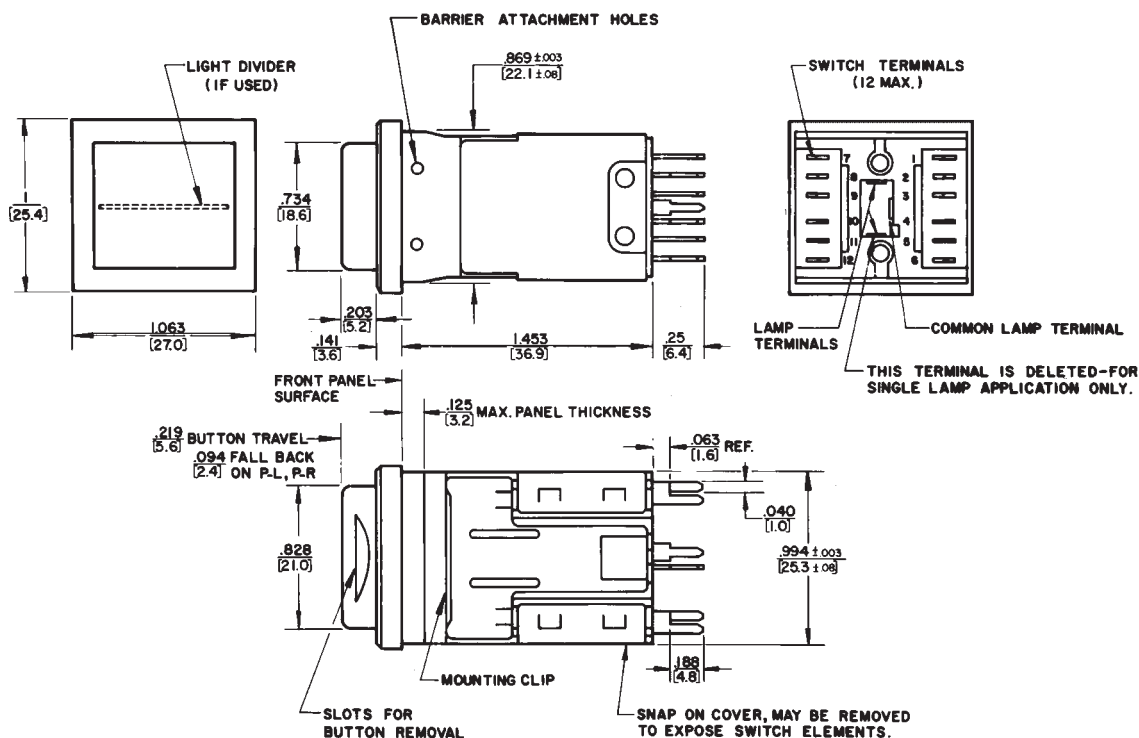
## PUSH-LITE® SWITCHES AND INDICATORS (continued)

### OUTLINE DIMENSIONS

## PUSH-LITE SWITCHES WITH SOLDER LUGS



## PUSH-LITE SWITCHES WITH PC TERMINALS

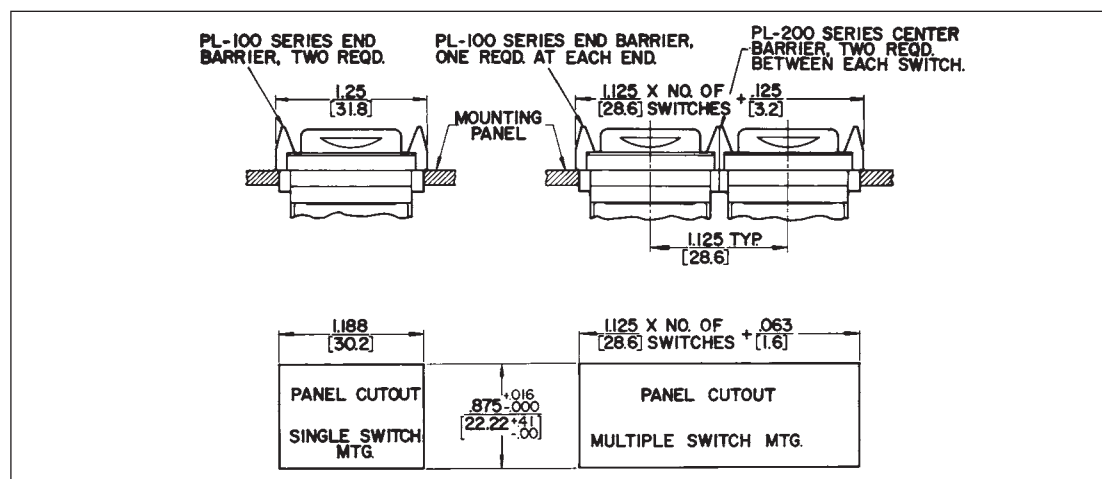


DIMENSIONS ARE FOR REFERENCE ONLY Inch  
(mm)

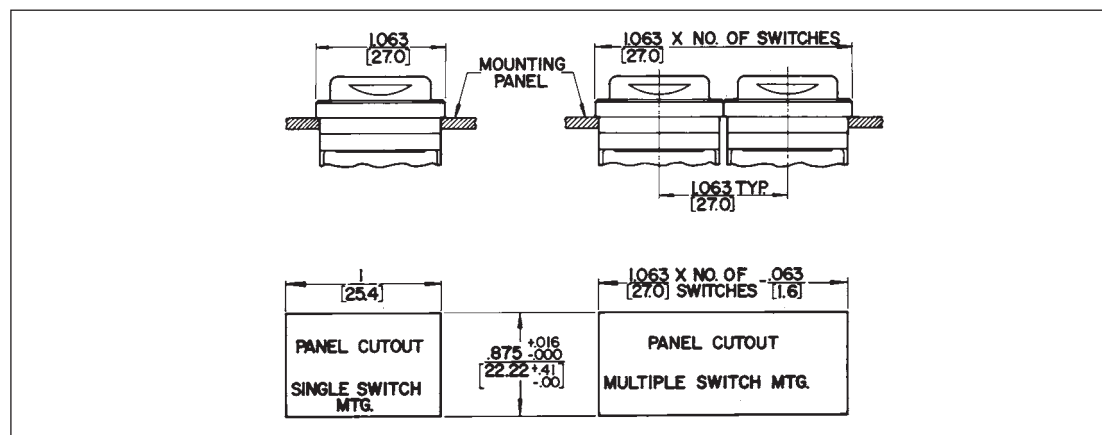
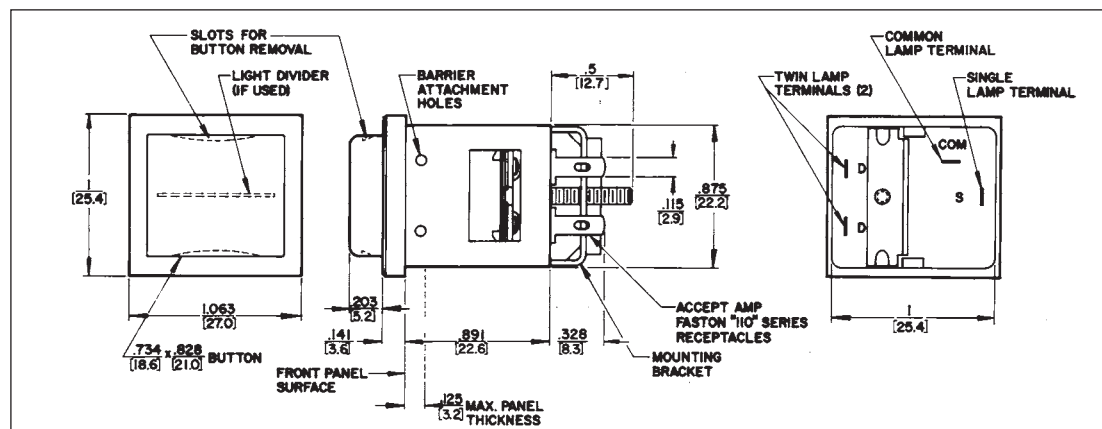
## PUSH-LITE® SWITCHES AND INDICATORS (continued)

## OUTLINE DIMENSIONS

## SWITCH AND INDICATOR MOUNTING WITH BARRIERS (See Note)



## SWITCH AND INDICATOR MOUNTING WITH BARRIERS (SEE NOTE)



## NOTE: PANEL OPENINGS FORM MULTIPLE ROW SWITCH MOUNTING

Leave .109" (2.77 mm) minimum width strip between panel-cutouts to assure secure mechanical mounting of adjacent clamp mounting brackets.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$



## SLIDE SWITCHES


## DESIGN FEATURES

Switchcraft slide switches are completely field tested and proven in electrical/electronic equipment applications. They are among the highest-quality, lowest-cost slide switches available to "cost-to-quality ratio" conscious engineers.

Precision slide switches are designed and constructed to meet or exceed industry standards for reliability, electrical capacity and life characteristics.

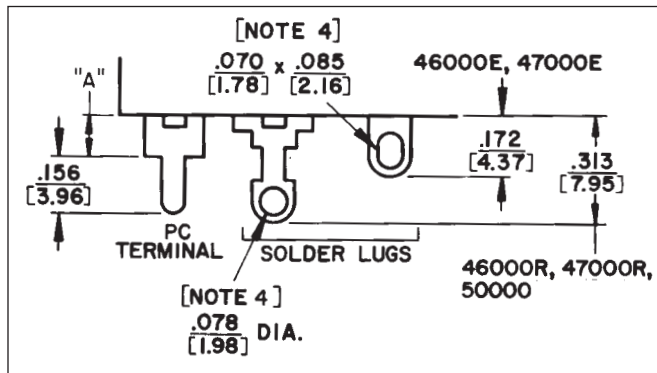
Switchcraft's slide action switches are ideal for use in critical military and industrial applications such as: instrumentation, test and ground support equipment, computers, control devices. Their attractive styling will enhance the appearance of modern home entertainment equipment.

## UL AND CSA SWITCHES

All slide switches in this catalog with part number suffix "E" are stamped with both UL and CSA marks. Other standard switches are UL recognized (except as noted) and are stamped with the  mark.

## TERMINALS

Silver-plated terminals are standard; gold-plated terminals are available on special order. Printed circuit terminals in varying lengths from ("A" dimension) .078" (1.98 mm) to 1.25" (31.75 mm) are available on special order. Reference "A" on all switch drawings indicates length of PC terminals. See illustration and notes below for selection of terminals.

SPECIAL ORDER SWITCHES FOR  
CSA APPLICATIONS

The following series of switches (solder lug type) must be assembled with a fishpaper or phenolic solder guard to be CSA certified and stamped. Available on special order only. Series 46000R, 47000R, 46313R, 49000L, 50000L, Solder guards are not required on these switch series with PC terminals. However, they can only be supplied with CSA stamp on special order. Solder guards are not required on UL only versions. Contact Switchcraft for details.

## SWITCH SERIES IDENTIFICATION

Series	Name	Number of Positions
46000	General Purpose Slide Switches	2, 3
47000	Tandem Slide Switches	2; 2 gang
49000	General Purpose Slide Switches	3
50000	General Purpose Slide Switches	2
56200, C56200	"Tini-Slide" Slide Switches	2
56300, C56300	"Tini-Slide" Slide Switches	3
C63000	Miniature Slide Switches	4
EPS1, EPS2 EPS3, EPS4	European Line Voltage Selector Switches	2

Series	Description
46000E	Note 1
46000R	Notes 1, 3
47000E	Note 1
47000R	Notes 1, 3
49000	Note 1
50000	Notes 1, 3
56000, C56000	See page 288
62000, C62000	See page 290
C63000	See page 290
EPS1, EPS2 EPS3, EPS4	See page 291

## NOTES:

- PC terminal "A" dimension is:  
Standard - .078" (1.98)  
Special - .109" (2.77), .141" (3.58), .160" (4.06), .180" (4.57), .203" (5.16), .234" (5.94), .266" (6.76), .313" (7.95), .391" (9.93), .400" (10.16), .438" (11.12), .484" (12.29), .609" (15.47), .688" (17.48), .719" (18.26), .813" (20.65), .969" (24.61), 1.25" (31.75)
- .078" (1.98) "A" dimension is not recommended for momentary switches unless clearance hole for return spring is provided in PC board.
- Accepts up to #14 AWG wire.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## SLIDE SWITCHES (continued)

## DESIGN FEATURES (continued)

## SWITCHING

"Double-wipe" slide switches incorporate special "Sliders" to assure wiping action of terminals. This exclusive double wiping action reduces the possibility of oxidation or increased contact resistance. These longer lasting, self-cleaning sliders provide a switch with greater dependability.

The "Sliders", which are formed with precision dies, are U-shaped to give bifurcated contact reliability. "Sliders" are made from a special copper alloy, plated, which assures uniform tensile strength over the entire life of the switch.

Switch terminals are copper alloy, plated. Plating completely encloses the contact area in a silver jacket for positive and continuous electrical operation. A tarnish preventive lubricant coating is applied to the sliders and terminals.

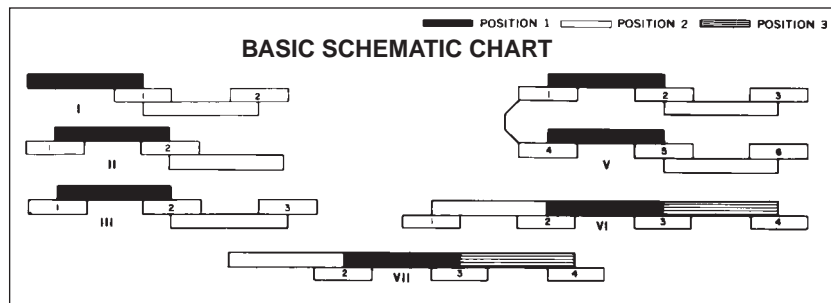
**NOTE:** "double-wipe" action on all switches except Series 62000 and 46256LFR.

## BASIC SCHEMATIC CHART

Standard arrangement is "Break" before "Make" (non-shorting). "Make" before "Break" (shorting) is available on special order in Series 46000R, 47000R, 49000 and 50000.

## PART NUMBER SUFFIX LETTERS

Letter	Description
B	Special pushbutton type. Depressing (rather than sliding) pushbutton operates the switch.
C	Tandem switch with 2 knobs; knobs are internally (mechanically) coupled.
D	3-position switch having internal dust shield.
E	Molded terminal board.
F	Flush actuator. Screwdriver slotted. All series except 47000 series marked standard as "115/230." Other markings available as special order. Call Switchcraft for details.
L	Locking action.
M	Momentary (non-lock) action.
P	Switch has external plunger.
R	Current ratings up to 3A, 125V AC. Phenolic terminal board.
S	Shorting type contacts, make-before-break.
T	3-position switches only. One side of neutral has locking action; the other side has momentary action.



## KNOBS KNOB HEIGHTS Inches (mm)

Series	Flush	.063 (1.6)	.087 (2.21)	.094 (2.39)	.100 (2.54)	.112 (2.84)	.125 (3.18)	.137 (3.48)	.15 (3.81)	.156 (3.96)	.187 (4.75)	.188 (4.78)	.200 (5.08)	.203 (5.16)	.219 (5.56)	.250 (6.35)	.302 (7.67)	.313 (7.95)	.315 (8)	.328 (8.33)	.344 (8.74)	.375 (9.52)	.406 (10.31)	.440 (11.18)	.453 (11.51)	.469 (11.91)	.487 (12.37)	.500 (12.7)	.531 (13.49)	.563 (14.3)	.594 (15.09)	.719 (18.26)	.750 (19.05)
46000E	*																			*													
46000R	(1)																																
46300R																				*													
47000	*(1)																			*(2)													
49000																												*					
50000																											*						
56200													*																				
56300										*																							
62000 (2)													*																				
C63000													*																				
EPS (3)	*																																

\* Standard, ◇ Special order

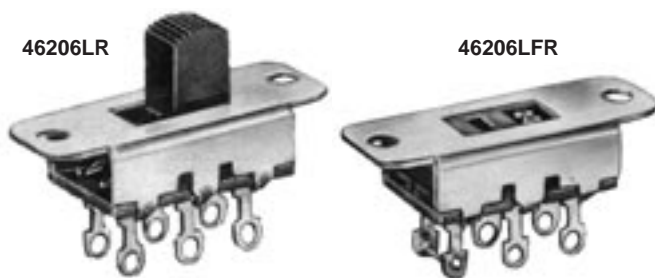
1. Flush screwdriver actuator is standard on numbers 46206LFE, 46206LFR, 46256LFE, 46256LFR and 47227LFR.

2. Numbers 62206L and C62206L have side knob actuator (rather than top knob) standard.

3. EPS switches not available with raised knobs.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## GENERAL PURPOSE SLIDE SWITCHES



## SERIES 46200E, 46200R - 2 POSITION

## SPECIFICATIONS

**Contact Ratings:** 0.5A DC and 3A AC, 125V non-inductive. (Also 1.5A, 250V non-inductive for Series 46000E only). Numbers 46206LFR and 46256LFR are not designed to switch more than 125V, and must be set to desired position before power is applied to equipment, appliance, etc.

**Listings:** UL recognized and CSA certified. Series 46000R switches are CSA marked on special order only. Ref. UL card E40668 and CSA File 28260.

**Housing:** Steel, plated.

**Knob:** Black thermoplastic.

**Terminals and Slider Contacts:** Copper alloy, plated.

**Insulation:** Series 46000E: Thermoplastic.

Series 46000R: Rigid plastic.

**Temperature Range:** -4°F to +158°F (-20°C to +70°C).

**Dielectric Strength:** 1 kV rms @ sea level.

**Insulation Resistance:** 1 k MΩ minimum.

## SPECIAL ORDER FEATURES

1. .344" (8.74 mm) high knobs are standard; other heights available. See chart on page 283.
2. #6-32 and #4-40 tapped flanges for mounting available (except 46204MBR and 46206MP).
3. P.C. terminals.
4. Plunger length on 46206MP - Other lengths from .125" (3.18 mm) to 1.844" (46.84 mm) long.
5. Series 46000R switches are CSA marked on special order only. See page 282.

## PART NUMBERS

Series 46200E	Series 46200R	Description	Schematic*
◇46201ME	46201MR	SPST NO, Momentary	I
◇46202LE	46202LR	SPST, Locking	II
◇46202ME	◇46202MR	SPST NC, Momentary	II
46203LE	46203LR	SPDT, Locking	III
◇46203LSE	◇46203LSR	SPDT, Locking	III Shorting
◇46203ME	46203MR	SPDT, Momentary	III
46204LE	◇46204LR	DPST, Locking	2-I
◇46204ME	◇46204MR	DPST NO, Momentary	2-I
46206LE	46206LR	DPDT, Locking	2-III
46206LFE	46206LFR	DPDT, Locking (1)	2-III
◇46206LSE	◇46206LSR	DPDT, Locking	2-III Shorting
◇46206ME	◇46206MR	DPDT, Momentary	2-III
-	◇46206MP	DPDT, Momentary*	2-III
46256LFE	46256LFR	DPDT, Locking (1) (2)	V
-	◇C46203LR**	SPDT, Locking	III
-	◇C46204MR**	DPST NO, Momentary	2-I
-	C46206LR**	DPDT, Locking	2-III
-	C46206LFR**	DPDT, Locking (1)	2-III

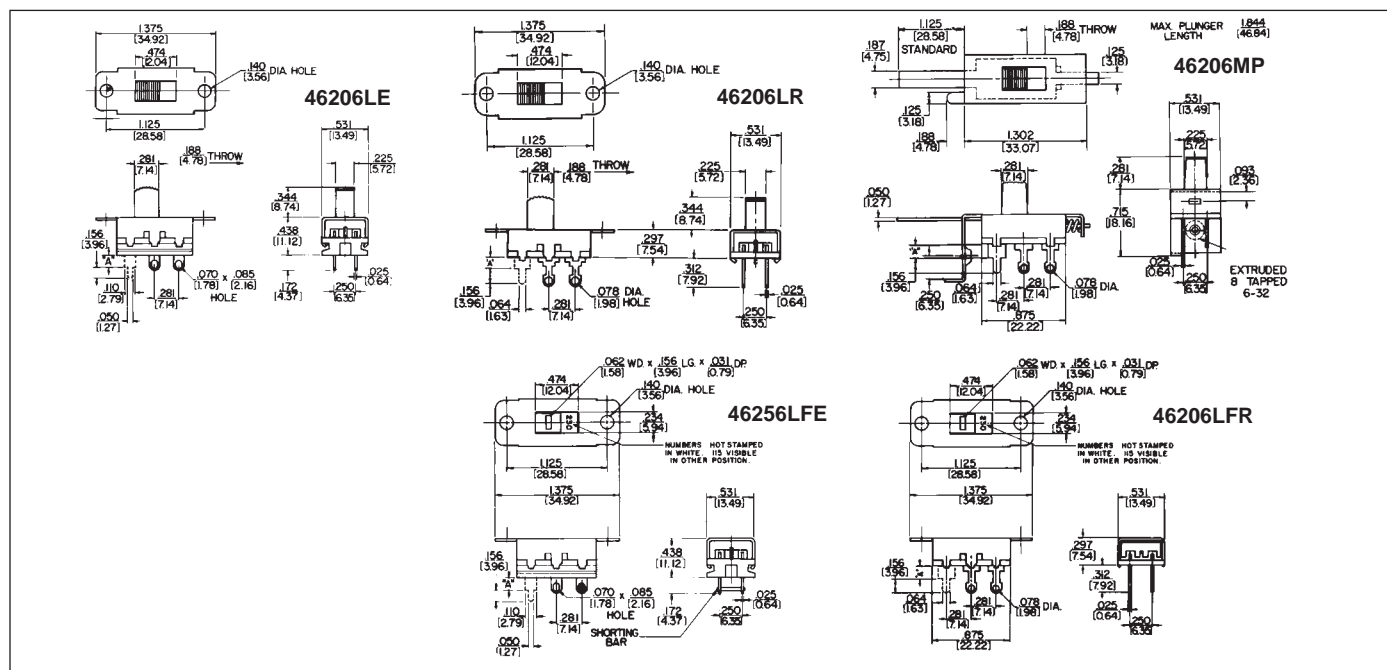
\* Contacts are non-shorting, except as noted.

\*\* "C" prefix specifies .078 inch (1.98) PC terminals, no mounting ears.

(1) Recommended for power selection, 115-230 legend, screwdriver slotted actuator minimizes tampering.

(2) Shorting bars installed.

◇ Special order only; contact Switchcraft



DIMENSIONS ARE FOR REFERENCE ONLY

Inch  
(mm)

## GENERAL PURPOSE SLIDE SWITCHES (continued)



## SERIES 46300R - 3-POSITION

Three-position switches offer locking-locking, momentary-momentary and locking-momentary action for talk-listen applications. All switches have positive center detent and shutter type dust cover to prevent dirt and dust from contaminating switch contacts.

## SPECIFICATIONS

**Contact Ratings:** 0.5A DC and 3A AC, 125V non-inductive.

**Listings:** UL recognized, card E40688 CSA certified (marked) switches available on special order only.

See page 282.

**Housing:** Steel, plated.

**Detent Spring:** Music wire.

**Shim:** Black vulcanized fiber.

**Knob:** Black thermoplastic.

**Terminals & Slider Contacts:** Copper alloy, silver-plated.

**Insulation:** Phenolic.

**Temperature Range:** -4°F to +158°F (-20°C to +70°C).

**Dielectric Strength:** 1 kV rms @ sea level.

**Insulation Resistance:** 1 k MΩ minimum.

## SPECIAL ORDER FEATURES:

1. .344" (8.74 mm) high knobs are standard; other heights available. See chart on page 283.
2. Series 46000R switches are CSA marked on special order only. See page 282.

## PART NUMBERS

Part** Number	Circuitry	Action Positions*			Schematic
		#1	Center	#2	
46311LDR	SPTT	L	L	L	VI
◇46311MDR	SPTT	M	L	M	VI
◇46311TDR	SPTT	L	L	M	VI
46313LDR	DPTT	L	L	L	2-VI
46313MDR	DPTT	M	L	M	2-VI
46313TDR	DPTT	L	L	M	2-VI

◇ Special order only; contact Switchcraft for price and delivery.

\* L - Locking; M - Momentary.

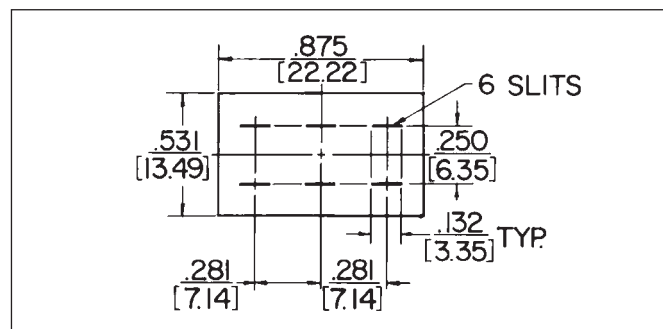
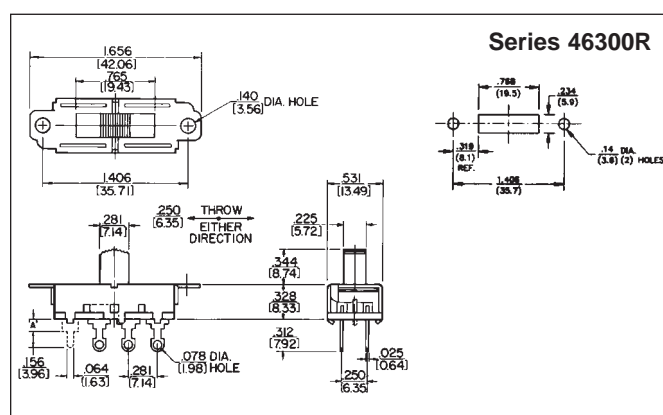
\*\* "C" prefix specifies .078" (1.98) PC terminals, no mounting ears.

## SOLDER GUARDS

**Insulating Solder Guards, P-2370** (2-position); and **◇P-2633** (3-position); slip over solder lug terminals and prevent solder splashes from entering interior (contact area) of switch. Made of fishpaper .01" (.25 mm) thick, Solder Guard slips over terminals quickly and easily. Precision punched slots lock onto terminals, and rectangular shape conforms with dimension of switch terminal board. Minimizes costly production line rework.

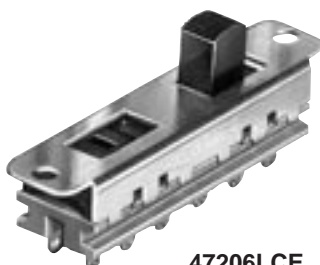
## Solder Guards can be used on:

- General Purpose, Series 46000R
- Tandem, Series 47000R.

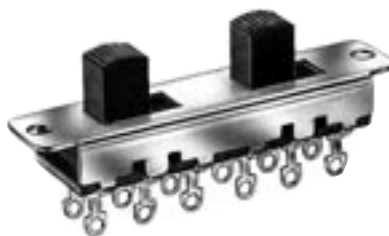


DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## GENERAL PURPOSE SWITCHES - TANDEM



47206LCE



47206LR



47227LFR

### SERIES 47200E, 47200R - 2 POSITION

Space saving, two-gang slide switches are contained in one housing. Switching is locking type with non-shorting contacts.

### SPECIAL ORDER FEATURES

1. .344" (8.74 mm) high knobs or flush knobs are standard, depending on switch selected; other heights available. See chart on page 283.
2. Series 47000R switches are CSA marked on special order only. See page 282.

### SPECIFICATIONS

**Contact Ratings:** 0.5A DC and 3A AC, 125V non-inductive, (Also 1.5A, 250V non-inductive for Series 47000E only.)

47227LFR switches are not designed to switch more than 125V, and must be set to desired position before power is applied to equipment or appliance.

**Listings:** UL recognized, card E40668, and CSA certified (card 28260). Series 47000R switches are CSA certified on special order only. See page 282.

**Housing:** Steel, plated.

**Knob:** Black thermoplastic.

**Terminals and Slider Contacts:** Copper alloy, silver-plated.

**Insulation:** Series 47000E - Thermoplastic.

Series 47000R - Rigid plastic.

**Temperature Range:** -4°F to +158°F (-20°C to +70°C).

**Dielectric Strength:** 1 kV rms @ sea level.

**Insulation Resistance:** 1 k MΩ minimum.

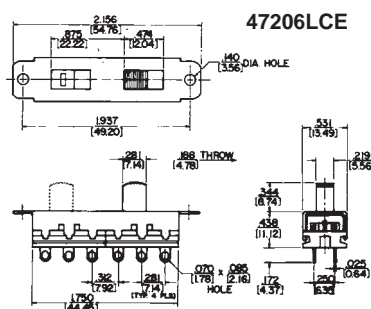
### PART NUMBERS

Series 47200E	Series 47200R	Description	Schematic
◇47202LE	◇47202LR	SPST - SPST	II II
◇47203LE	◇47203LR	SPDT - SPDT	III III
◇47204LE	◇47204LR	DPST - DPST	2-I 2-I
◇47204LCE	◇47204LCR	DPST - DPST	2-I 2-I
◇47206LE	◇47206LR	DPDT - DPDT	2-III 2-III
◇47206LCE	◇47206LCR	DPDT - DPDT	2-III 2-III
-	◇47215LR	SPST - SPDT	II III
-	◇47215LCR	SPST - SPDT	II III
-	◇47217LR	SPST - DPST	II 2-II
-	◇47217LCR	SPST - DPST	II 2-II
-	◇47221LR	SPDT - DPST	III 2-II
-	◇47221LCR	SPDT - DPST	III 2-II
	◇47227LFE	DPDT - DPDT	2-V
	◇47227LFR	DPDT - DPDT	2-V

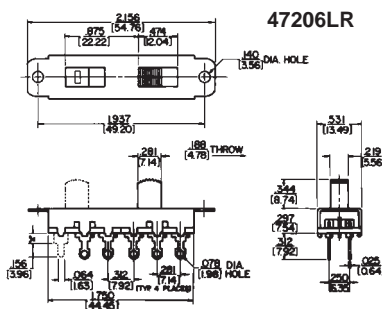
**NOTE:** Series 47200E and 47200R - All switches have two independent knobs, except:

- 47204LE, 47204LCR, 47206LCE and 47206LCR have one knob and one flush actuator.
- 47227LFE and 47227LFR have internal mechanical coupling and two flush, slotted screwdriver actuators.

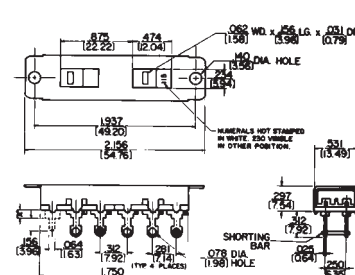
◇ Special order only; contact Switchcraft



47206LCE



47206LR



47227LFR

DIMENSIONS ARE FOR REFERENCE ONLY

Inch  
(mm)



## GENERAL PURPOSE SLIDE SWITCHES (continued)



## SERIES 49300 - 3 POSITION

Large, heavy duty, three and four pole slide switches. Standard mounting clearance is .141" (3.58 mm). Series 49300L, non-shorting contacts; Series 49300LS, shorting contacts.

## SPECIFICATIONS

**Contact Ratings:** 0.5A DC and 3A AC, 125V non-inductive.

**Listings:** UL recognized (card E40668); CSA certified (marked) switches available on special order only.

See page 282.

**Housing:** Steel, plated.

**Detent Shim:** Copper alloy.

**Knob:** Black thermosetting plastic.

**Terminals and Slider Contacts:** Copper alloy, silver-plated.

**Insulation:** Rigid plastic.

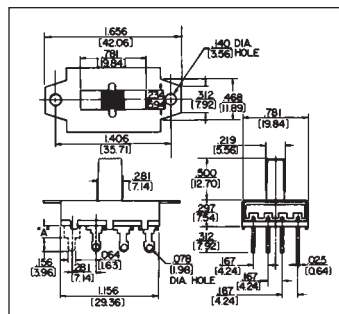
**Temperature Range:** -4°F to +158°F (-20°C to +70°C).

**Dielectric Strength:** 1 kV rms @ sea level.

**Insulation Resistance:** 1 k MΩ minimum.

## SPECIAL ORDER FEATURES

1. .5" (12.7 mm) high knobs are standard; other heights available. See chart on page 283.
2. #4-40 extruded and tapped mounting holes available.
3. Series 49300L switches are CSA marked on special order only. See page 282.



49331L

## PART NUMBERS

Part Number	UL & CSA Listing	Description	Schematic
◇49309L	Yes	3-PDT, Locking*	3-VII
◇49309LS	No	3-PDT, Locking*	3-VII
◇49329L	Yes	3-PTT, Locking	3-VI
◇49329LS	No	3-PTT, Locking	3-VI
◇49312L	Yes	4-PDT, Locking*	4-VII
◇49312LS	No	4-PDT, Locking*	4-VII
◇49331L	Yes	4-PTT, Locking	4-VI
◇49331LS	No	4-PTT, Locking	4-VI

\* 3rd position is off.

◇ Special order only; contact Switchcraft.

## SERIES 50200 - 2 POSITION

A larger 2 position "double wipe" slide switch offering three and four poles of switching and locking or momentary action. Series 50200L and M, non-shorting; Series 50200LS and MS, with shorting contacts.

## SPECIFICATIONS

**Contact Ratings:** 0.5A DC and 3A AC, 125V non-inductive.

**Listings:** UL recognized (card E40668); CSA certified (card 28260). Series 50200L switches are CSA marked on special order only. See page 282.

**Housing:** Steel, plated.

**Detent Shim:** Copper alloy.

**Knob:** Black thermosetting plastic.

**Terminals and Slider Contacts:** Copper alloy, plated.

**Insulation:** Rigid plastic.

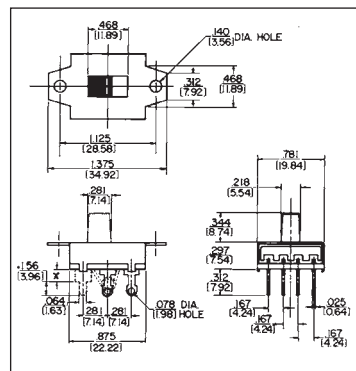
**Temperature Range:** -4°F to +158°F (-20°C to +70°C).

**Dielectric Strength:** 1 kV rms @ sea level.

**Insulation Resistance:** 1 k MΩ minimum.

## SPECIAL ORDER FEATURES

1. .344" (8.74 mm) high knobs are standard; other heights available. See chart on page 283.
2. 50212LF available with flush, screwdriver slotted actuator and has 4 PDT locking action.
3. Extruded and tapped 4-40 or 6-32 holes available.
4. Series 50200L switches are CSA marked on special order only. See page 282.



50209L

## PART NUMBERS

Part Number	Description	Schematic
◇50207L	3PST - Locking	3-I
◇50207M	3PST, N.O. Momentary	3-I
◇50208L	4PST, Locking	4-I
50209L	3PDT, Locking	3-III
◇50209LS	3PDT, Locking	3-III
◇50209M	3PDT, Momentary	3-II
◇50209MS	3PDT, Momentary	3-II
50212L	4PDT, Locking	4-III
◇50212LS	4PDT, Locking	4-III

◇ Special order only; contact Switchcraft.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## MINIATURE SLIDE SWITCHES



SPECIAL ORDER



56206L1



C56206L2



C56206L2

## SERIES 56200, C56200 - 2 POSITION

"Tini-Slide" slide switches have Exclusive SNAP SLIDE lifting and wiping action. This unique, positive action combines the best features of "snap" and "slide" movements into the design of a superior switch. Pitting, burning and contamination are minimized. Contacts lift through an air gap, drop on stationary contacts, and slide, wiping themselves clean. Subminiature size is ideal where useable space is at a premium.

## SPECIFICATIONS

**Contact Ratings:** 0.5A, 125V AC or DC, non-inductive. Minimum life at rated load 6000 cycles. Resistance after 6000 cycles at rated load is 50 milliohms maximum.

**Terminals:** PC Type - silver-plated. Each terminal has standoff shoulder for stable mounting and space for board clearance.

**Mounting:** Flange, (56206L1 and 56206L2) - .1" (2.54 mm) holes for screw or mounting rivet. PC - Direct mounting to PC boards up to .093" (2.36 mm) thick.

**Knob:** Molded thermoplastic (UL 94V-1).

**Terminal Board:** Molded thermoplastic (UL 94V-0).

**Terminals:** Copper alloy, silver-plated.

**Contact Sliders:** Copper alloy.

**Temperature Range:** -4°F to +158°F (-20°C to +70°C).

**Dielectric Strength:** 1 kV rms @ sea level.

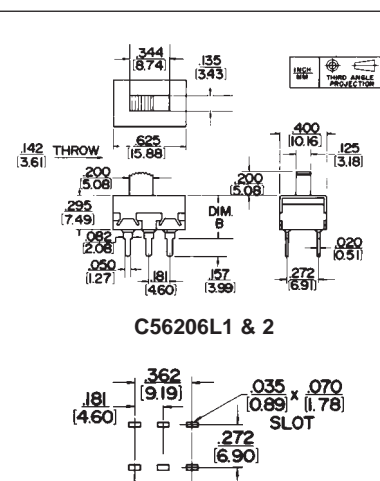
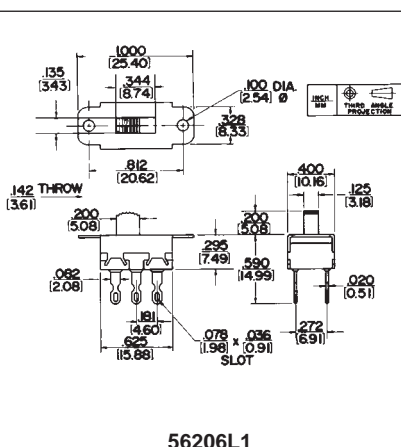
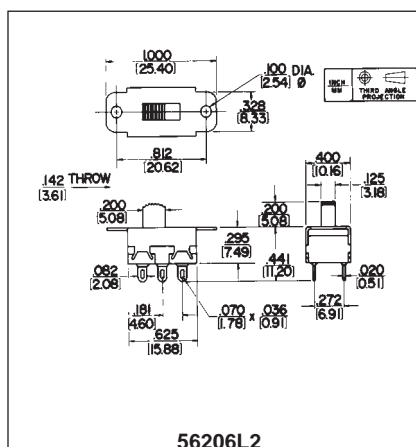
**Insulation Resistance:** 1 k MΩ minimum.

## SPECIAL ORDER FEATURES

1. .2" (5.08 mm) high knobs are standard; other heights available on special order. See page 283.
2. Red and white knobs available.
3. Mounting flanges with .1" (2.54 mm) diameter holes on C56206L1 or C56206L2. Flange holes tapped #4-40 on 56206L1 or 56206L2 (where production quantities warrant).
4. UL stamped on special order.

## PART NUMBERS

Part Number	Dimension "B" Inch (mm)	Description	Schematic
56206L1	-	DPDT, Locking	2-III
56206L2	-	DPDT, Locking	2-III
C56206L1	.573 (14.55)	DPDT, Locking	2-III
C56206L2	.352 (8.94)	DPDT, Locking	2-III



RECOMMENDED PC BOARD LAYOUT (Component Side)

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## MINIATURE SLIDE SWITCHES (continued)



56313L1



56313L2



C56313L1



C56313L2

**SERIES 56300, C56300 - 3 POSITION**

Series 56300 "Tini-Slide" switches provide ultra-reliable 3-position switching. They afford maximum space savings in military, industrial and consumer applications, such as instrumentation, test and ground support equipment, appliances, computers, and control devices.

**SPECIFICATIONS**

**Contact Ratings:** 0.5A, 125V AC or DC, non-inductive. Minimum switch life is 6000 cycles. Resistance after 6000 cycles at rated load is 50 milliohms maximum.

**Terminals:** Solder Lugs - 56313L1 with wrap around notch; 56313L2 with solder lug. PC - .585" (14.68 mm) "B" dimension and .364" (9.24 mm) "B" dimension.

**Mounting:** Mounting ears for mounting to chassis of panels with screws or rivets (not supplied). Switches with PC terminals have stand-off shoulders for solid PC mount.

**Knob:** Molded thermoplastic (UL 94HB).

**Terminal Board:** Molded thermoplastic (UL 94V-0).

**Terminals:** Copper alloy, silver-plated.

**Contact Sliders:** Copper alloy.

**Temperature Range:** -4°F to +158°F (-20°C to +70°C).

**Dielectric Strength:** 1 kV rms @ sea level.

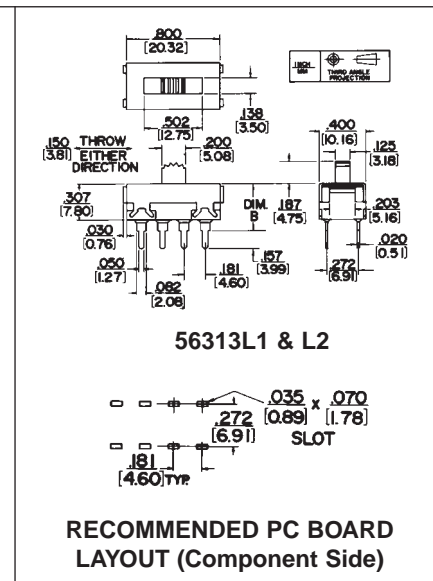
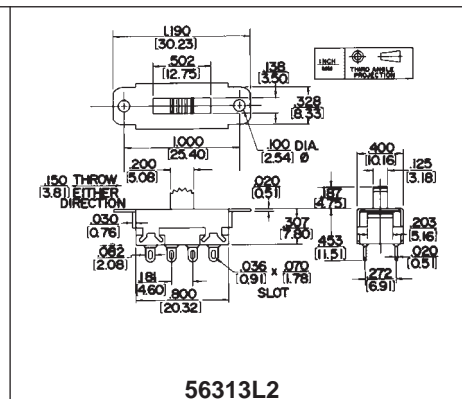
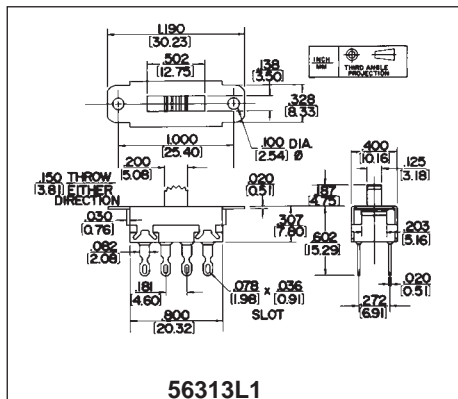
**Insulation Resistance:** 1 k MΩ minimum.

**SPECIAL ORDER FEATURES**

1. .187" (4.75 mm) high knob is standard; Other heights available on special order. See page 283.
2. Red and white knobs available.
3. Two mounting variations:
  - a. Tapped #4-40 holes on mounting ears for machine screws.
  - b. Mounting ears with .1" (2.54 mm) diameter holes on switches with PC terminals.

**PART NUMBERS**

Part Number	Dimension "B" Inch (mm)	Description	Schematic
56313L1	-	DPTT, Locking	2-VI
56313L2	-	DPTT, Locking	2-VI
C56313L1	.585(14.85)	DPTT, Locking	2-VI
C56313L2	.364 (9.24)	DPTT, Locking	2-VI

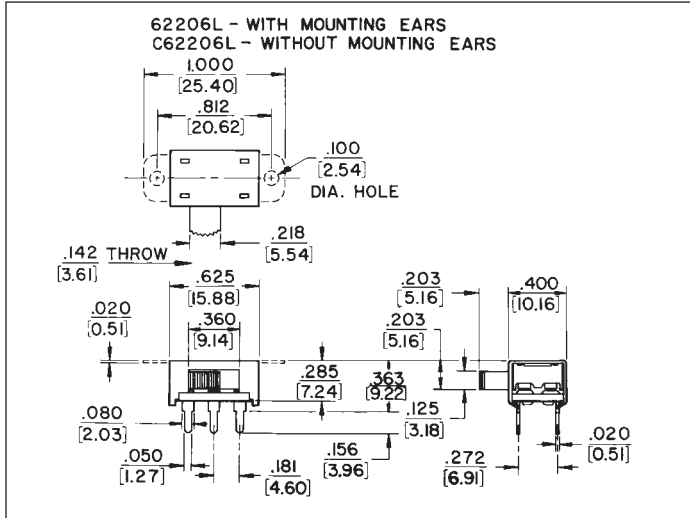
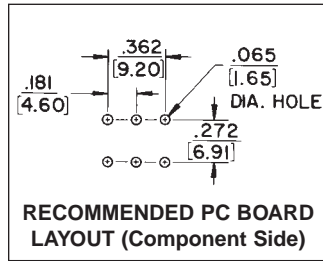


DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## SIDE-SLIDE®/MINIATURE SLIDE SWITCHES



62206L



### SERIES 62200 - 2 POSITION

2-position locking action with side knob actuator. Side knob provides low profile, saving space on PC boards.

#### SPECIFICATIONS

**Contact Ratings:** 0.5A, 125V AC or DC.

**PC Terminals:** Copper alloy, silver plated.

**Housing:** Steel, plated.

**Knob:** Molded thermoplastic.

**Terminal Board:** Rigid plastic.

**Sliders:** Copper alloy, plated.

**Dielectric Strength:** 1000 V rms.

**Insulation Resistance:** 1 k MΩ minimum.

#### SPECIAL ORDER FEATURES

1. Various knob heights available on special order.
2. Various lengths available on special order.

#### PART NUMBERS

Part Number	Description	Schematic
◇62206L	DPDT, with mounting ears, Locking	2-III
C62206L	DPDT, without mounting ears, Locking	2-III

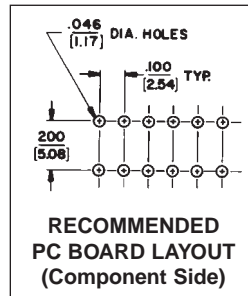
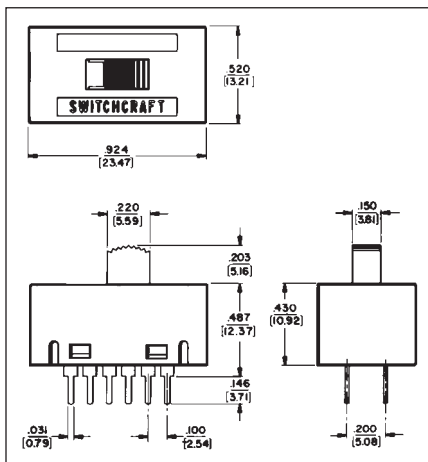
◇ Special order only; contact Switchcraft.

## MINIATURE SLIDE SWITCHES



### SERIES C63200 - 2 POSITION, 4 POLE

C63200 switches designed for applications, such as: instrumentation, test and ground support equipment, computers, data communications and medical equipment. PC mounting on standard industry .100" (2.54 mm) x .200" (5.08 mm) centers. Mounts on PC boards up to .093" (2.36 mm) thick. Molded black thermoplastic knobs. Terminals are copper alloy, gold-plated on contact area, tinned on terminal end.



Part Number	Action	Switching	Ratings	Schematic	Terminals
C63212L	Locking	4PDT	300mA max. 30V AC	4-III	Copper alloy, gold-plated on contact area, tinned on terminal end

DIMENSIONS ARE FOR REFERENCE ONLY Inch  
(mm)



## EUROPEAN LINE VOLTAGE SELECTOR SWITCHES



RED ACTUATOR

RED ACTUATOR



EPS1PC3



EPS2PC2



EPS3SL1



EPS4PC3

**SERIES EPS1, EPS2, EPS3, EPS4 - 2 POSITION**

European Power Selector Switches are designed for quick, easy programming/selection of 115V-230V primary power. These switches provide OEM designers with an excellent selection of PC and solder lug terminals and ratings up to 10A, 125V AC rating for electrical/electronic equipment and systems headed for the INTERNATIONAL marketplace.

**HOUSING AND ACTUATOR**

Switches have positive, double detents for "sure" locking into position. Screwdriver slot actuator virtually eliminates the possibility of accidental operation and minimizes tampering. Molded-in legends are: 115-230V. Terminals are staked into housing.

**SPECIFICATIONS**

**Contact Ratings:** EPS1, EPS2 - 2A, 250V AC and 4A, 125V AC. EPS3, EPS4 - UL and CSA - 10.1A, 125V; 5A, 250V. VDE - 10A, 250V.

**Listings:** UL and CSA recognized, UL card E40668; CSA card 28260. 2A, 250V AC is VDE listed, VDE #13707 (for European applications). Designed to conform to requirements of CEE (International Commission on Rules for the Approval of Electrical Equipment, Publication 24) and the IEC (International Electrotechnical Commission).

**Housing:** Molded black glass-reinforced plastic.

**Actuator and Cover:** Molded thermoplastic.

**Terminals:** Copper alloy, silver-plated.

**Slider Contacts:** EPS1, EPS2 - Bi-Metal, silver on copper alloy. EPS3, EPS4 - Copper alloy with silver cadmium oxide inlay.

**Temperature Range:** -4°F to +158°F (-20°C to +70°C).

**Dielectric Strength:** 2kV rms @ sea level.

**Insulation Resistance:** 1 k MΩ minimum.

**SPECIAL ORDER FEATURES**

Series EPS actuators having legends other than 115V and 230V are available on special order.

**NOTE:** Contact Switchcraft for details.

**PART NUMBERS****Series EPS1**

Part Number	Terminals	Dimension "B" Inch (mm)	Schematic
◇EPS1PC1	Straight PC	.681 (17.297)	2-III
◇EPS1PC2	Straight PC	.719 (18.263)	2-III
EPS1PC3	Right-Angle PC	-	2-III
EPS1SL1	Solder Lugs	-	2-III

◇ Special order only; contact Switchcraft.

**Series EPS2**

Part Number	Description	Dimension "B" Inch (mm)	Schematic
EPS2PC1	Straight PC	.730 (18.542)	2-III
EPS2PC2	Straight PC	.768 (19.507)	2-III
EPS2PC3	Right-Angle PC	-	2-III

**Series EPS3**

Part Number	Terminals	Dimension "B" Inch (mm)	Schematic
EPS3PC1	Straight PC	.681 (17.297)	2-III
EPS3PC2	Straight PC	.719 (18.263)	2-III
EPS3PC3	Right-Angle PC	-	2-III
EPS3SL1	Solder Lugs	-	2-III

**Series EPS4**

Part Number	Description	Dimension "B" Inch (mm)	Schematic
EPS4PC1	Straight PC	.730 (18.542)	2-III
EPS4PC2	Straight PC	.768 (19.507)	2-III
EPS4PC3	Right-Angle PC	-	2-III

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$



### EUROPEAN LINE VOLTAGE SELECTOR SWITCHES (continued)

#### EUROPEAN LINE VOLTAGE SELECTOR SWITCH

PC MOUNT

EPS1PC3 - Long, right-angle PC terminals and flanges for combined mounting to PC board and panel/chassis.

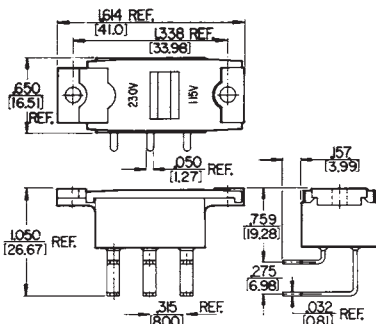
PANEL/CHASSIS MOUNT

EPS1PC1 - Short, PC terminals and flanges for combined mounting to PC board and panel/chassis.

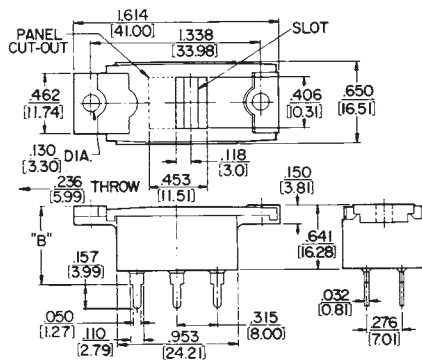
EPS2PC2 - Long, PC terminals for direct mounting to PC board only.

EPS2PC3 - Long, right-angle PC terminals for combined PC terminating and mounting.

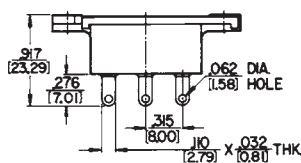
EPS1SL1 - Solder lug terminals and mounting flanges for panel/chassis mount.



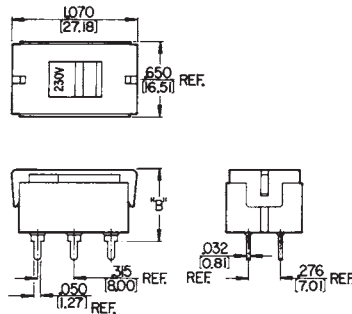
EPS1PC3



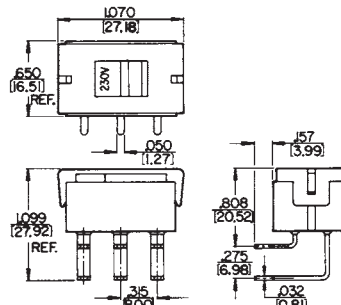
EPS1PC1 &amp; PC2



EPS1SL1

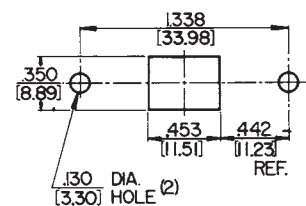


EPS2PC1 &amp; PC2

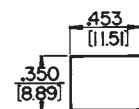


EPS2PC3

#### PANEL OPENING DATA

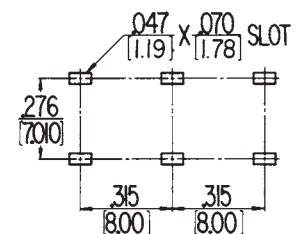


SERIES EPS1



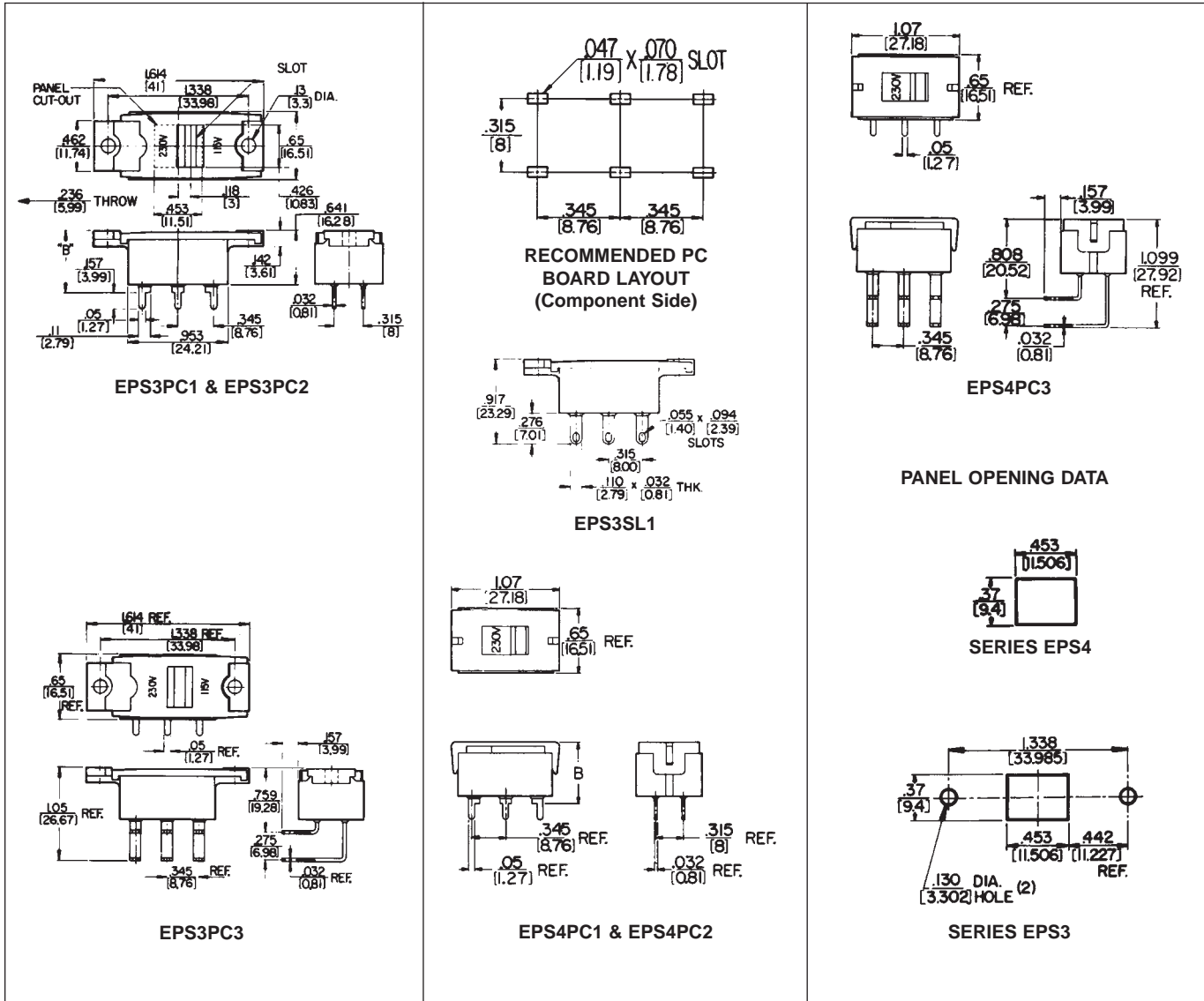
SERIES EPS2

#### RECOMMENDED PC BOARD LAYOUT (Component Side)



DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

EUROPEAN LINE VOLTAGE SELECTOR SWITCHES (continued)



DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## LEVER SWITCHES

### DESIGN FEATURES

High quality, field-proven Switchcraft® lever switches are available in a wide selection of illuminated and non-illuminated versions, 2- and 3-position, locking and non-locking functions can be provided. Switchcraft illuminated lever switches feature choice of colors, wide selection of switching circuits, single lamp illumination and ease of mounting and lamp replacement.

All switches utilize nickel silver springs without "form" at point of flexing to insure long spring life. The springs are assembled into a conventional stack assembly, insulated from each other by phenolic spacers with plastic tubing press-fit through each stack, insuring correct alignment of contacts and providing high insulation resistance.

### APPLICATIONS

Various front panel switching applications on computers, telecommunications systems, industrial control equipment, intercoms, ground support systems, medical electronics, scientific instruments, broadcast consoles and test instrumentation.

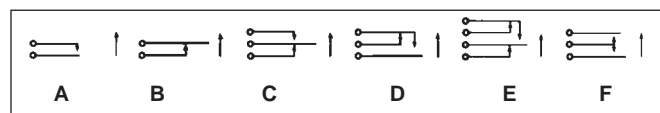
### CONTACTS

Below are listed the basic contacts available on switches in this catalog:

1. Fine silver contacts rated at 2A, 200W (maximum) AC non-inductive load.
2. Welded cross bar silver contacts rated at 3A, 300W (maximum) AC non-inductive load.
3. Welded cross bar palladium contacts rated at 2A, 200W (maximum) AC non-inductive load.
4. Welded cross bar gold alloy contacts rated at up to 1A, 100W (maximum) AC non-inductive load. (Dry circuit applications.)

### BASIC CONTACT FORMS

Below are the basic contact forms available standard on all Switchcraft Lever Switches. Specify circuits needed by referring to the letter identification and respective location on frame. See dimensional drawings for stack switch location.



To avoid ordering special switches it is possible to use a larger standard circuit, providing the circuit fulfills your requirements. Circuit Form K is widely used in talk-listen (intercom) function applications. In normal position (neutral), switch does not contact upper or lower contact spring. During typical operation, lever is held in upper (momentary) position while speaking. Releasing lever allows switch to return to neutral. For listening, lever is moved to down (locking) position. Lever is manually returned to neutral when finished.

SCHEMATIC  
DIAGRAM  
FORM K



### ORDERING STANDARD SWITCHES

Order lever switches by part number from pages 295 through 298.

### LAMP DATA

Lever-Lite® switches use T-1 3/4 flange base lamps which are available from commercial sources.

### ORDERING SPECIAL SWITCHES

#### Lever Switches

Should you desire a special version of any Switchcraft® lever switch not shown here, we require the following information:

1. Switch series.
2. Number of positions.
3. Mechanical action (locking, non-locking, etc.).
4. Contact configuration for each position.
5. Type of contact material.
6. Color sequence (Lever-Lite III).

### UL RECOGNIZED LEVER SWITCHES

Seven series of Switchcraft lever switches are UL recognized. These switches are available on special order to fulfill your switching requirements which specifically require UL listed switching devices.

1. Series 12000
2. Series 41000

**NOTE:** Refer to switch series in this catalog for full mechanical specifications and additional standard and special features.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## LEVER SWITCHES (continued)

## LEVER-LITE® III

## SERIES 84000 - ILLUMINATED LEVER SWITCHES

Lever-Lite® III illuminated lever switches are designed for front-of-panel mounting, relamping, terminating, color changes and removal. A minimum of time is required to install singly, in rows, or in matrix arrays to meet a wide variety of switching applications. 2- and 3-position types are available in non-locking functions. Mounts on .875" (22.22 mm) horizontal centers or 1.5" (38.1 mm) vertical centers. Talk-listen (intercom) function is also available. Illumination technique provides a different color for each lever position.

## LAMPS

Standard T 1-3/4" midget flange-base lamps (not supplied) are available in voltages up to 28V.

## SPECIAL ORDER FEATURES

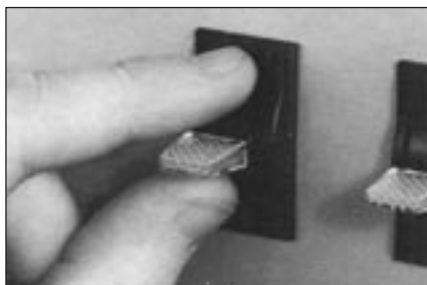
1. Talk-Listen (Intercom) function.
2. Welded cross bar gold alloy for dry circuit and silver contacts are available. See page 294.



## ILLUMINATION

A single internal lamp provides brilliant lever lighting in any color required. Standard factory installed color filters are provided as follows: Series 84000, Multi-Color Illumination 2-position - Amber (neutral position); green (down position). 3-position - Red (up position); amber (neutral position); green (down position). One-color (all positions) and non-illuminated switches can be specified on special order. Switchcraft will install filters for non-standard illumination requirements at nominal cost on special order.

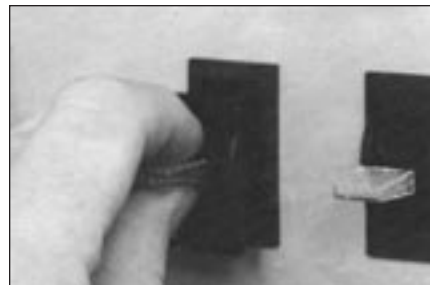
## MOUNTING



Grasp fingernail slots on opposite sides of escutcheon and snap out. Next, grasp lever and pull lever assembly free. Insert switch into panel hole.



Turn two internal screws clockwise with screwdriver to securely mount switch to panel.



Replace lever assembly and "snap" escutcheon into place. Installation complete!

## RELAMPING/REPLACING COLOR FILTERS

Lever-Lite III switches are designed for simplified lamp installation and replacement, and color filter changes or custom installation in the field or on the OEM production line. Lamps and filters may be changed at any time with ease and without dismounting switch from panel or disturbing wiring.



Remove escutcheon and lever assembly. (see "MOUNTING" above) For relamping, pull lamp out of retainer with finger-tip. Replace lamp.



For color filters, use fingernails or small screwdriver to remove. Gently lift (don't pry) up under edge of filter until it "pops" out.



Place new filter in position and press until it "snaps" in. Replace lever assembly and escutcheon. (see "MOUNTING" above)

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## LEVER SWITCHES (continued)

### LEVER-LITE® III SERIES 84000 - ILLUMINATED LEVER SWITCHES

#### SPECIFYING LEVER-LITE® III SWITCHES

1. Basic Switch - Refer to Part Number table for ordering switches. For special switches, such as talk-listen (intercom) function, special circuit forms, or non-illuminated switches, contact factory for price and delivery.
2. Illumination - Supplied with standard color filters installed. Switchcraft will install other combinations at nominal extra cost.
3. Lamps - Lamps are not supplied with switches.

#### SPECIFICATIONS

**Mounting/Retaining Clips and Covers:** Steel, plated.

**Contact Ratings:** Welded cross bar palladium contacts rated at 1A, 200W maximum AC non-inductive load are standard. Other contacts available. See "SPECIAL ORDER FEATURES" on page 295.

#### PART NUMBERS TWO POSITION

Part Numbers		Switching
Non-Locking	Locking	
◇84206	84206L	2-C
◇84212	◇84212L	4-C

**Springs:** Copper alloy, plated.

**Lamp Terminals:** Copper alloy, plated.

**Lamp Socket:** Zinc, plated.

**Terminals:** Copper alloy, plated, straight solder lugs.

**Housing, Escutcheon, Knob, Actuator and Switching Stacks Insulation:** Molded plastic.

**Temperature Range:** -22°F to 158°F (-30°C to +70°C).

**Dielectric Strength:** 1 kV DC.

**Leakage Resistance:** 1,000 MΩ or greater.

#### K-131 COLOR FILTER KIT

Kit is available for changing or replacing color filters to meet illumination requirements. Each kit contains 3 filters of each color: Amber, Blue, Green, Red, White and Yellow.

#### SWITCHCRAFT PART NUMBER K-131

#### REPLACEMENT LEVERS

**Number G6083** (for locking lever)

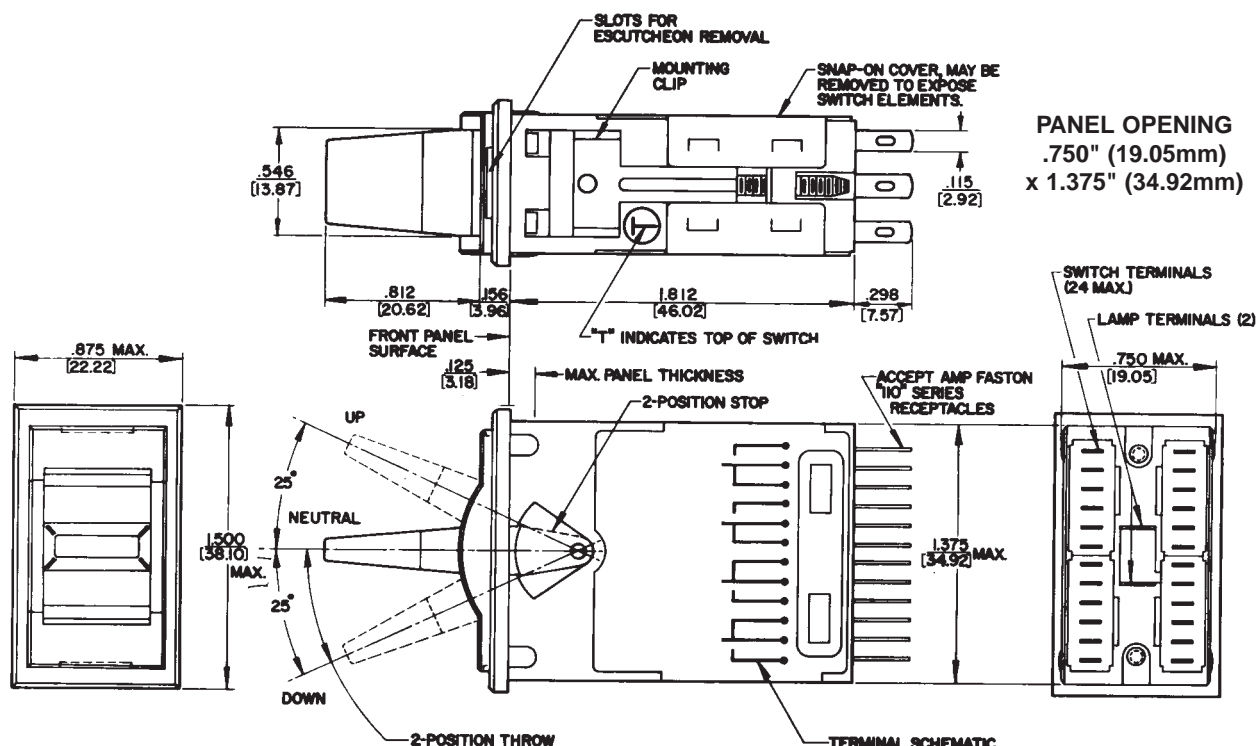
**Number G6084** (for non-locking lever)

#### THREE POSITION

Part Numbers		Position 1	Position 2
◇84306	84306L	1-C	1-C
◇84312	84312L	2-C	2-C
◇84324	84324L	4-C	4-C

◇ Special order only; contact Switchcraft.

#### LEVER-LITE® SERIES 84000



DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$



## LEVER SWITCHES (CONTINUED)



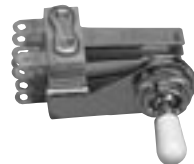
12010



12011



12012



12015



12013



12016



12014



12017

## LEV-R® SWITCH SERIES 12000

## Electrical

**Contact Ratings:** Fine silver contacts rated at 3A, 300W maximum AC non-inductive load standard. Other contacts available

**Leakage Resistance:** 1,000 MΩ or greater

**Dielectric Strength:** 250 VDC

## Material

**Frame:** Copper alloy, plated (3,000, 13,000); Steel, plated (12,000)

**Bushing and Shaft:** Copper alloy, plated

**Springs:** Copper alloy

**Knob:** Black molded thermoplastic

**Mounting Hardware:** Knurled copper alloy locknut

T10711, supplied. P10531 hex locknut, special order

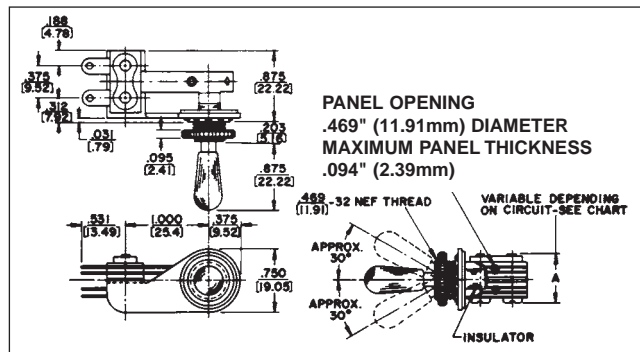
**Insulation:** Rigid plastic spacers with plastic tubing through stack. Rigid plastic and/or thermoplastic lifters. Thermoplastic cam on actuator end

## PART NUMBERS

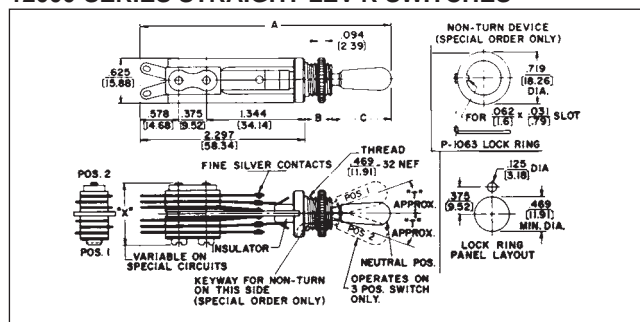
TWO POSITION NON-LOCKING\*+ THREE POSITION NON-LOCKING\*

Part Number	Stack Hgt. "X" & "Y" (max.)	Switching	Part Number	Stack Hgt. "X" & "Y" (max.)	Switching
◇12001	.719 (18.26)	1-A	◇12010	.703 (17.86)	1-B 1-B
◇12002	.688 (17.48)	1-B	◇12011	.703 (17.86)	1-B 1-B
◇12003	.750 (19.05)	1-C	◇12012	.766 (19.46)	1-B 1-B
◇12003D	.813 (20.65)	1-D	◇12013	.703 (17.86)	1-B 1-C
◇12004	.906 (23.01)	2-A	◇12014	.703 (17.86)	1-B 1-B
◇12005	.875 (22.22)	2-B	◇12015	1.078 (27.49)	2-B 2-B
◇12006	1.000 (25.40)	2-C	◇12016	.703 (17.86)	1-B 1-B
◇12006D	1.063 (27.00)	2-D	◇12017	.703 (17.86)	1-B 1-B
			◇12033	.719 (18.26)	1-K
			◇12034	.813 (20.65)	1-A 1-A
			◇12035	.750 (19.05)	1-B 1-B
			◇12036	.875 (22.22)	1-C 1-C
			◇12036D	1.000 (25.40)	1-D 1-D
			◇12037	.875 (22.22)	2-K

## 12000 SERIES RA LEV-R SWITCHES



## 12000 SERIES STRAIGHT LEV-R SWITCHES



## INTERCOM SWITCHES

Part Number	Stack Height "X" & "Y"	Switching
◇12033T	.719 (18.26)	1-K
◇12037T	.875 (22.22)	2-K

\* Add prefix "R" to part number if non-turn mounting is required. (Special order).

+ Add suffix "L" to part number if locking type is required.

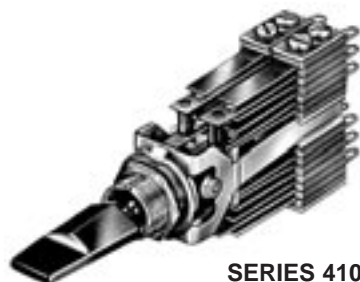
◇ Special order only; contact Switchcraft.

Knobs			
T12742	Black	T127410	Ivory
T12745	White	P2912	Amber

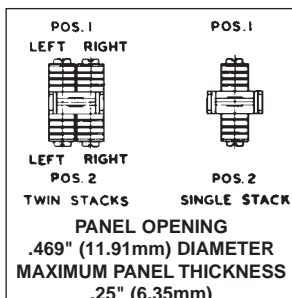
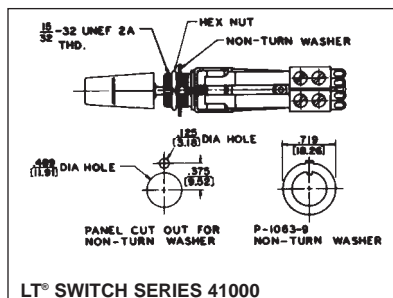
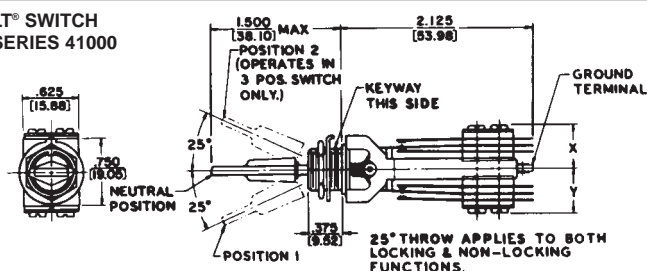
Knobs must be ordered separately.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

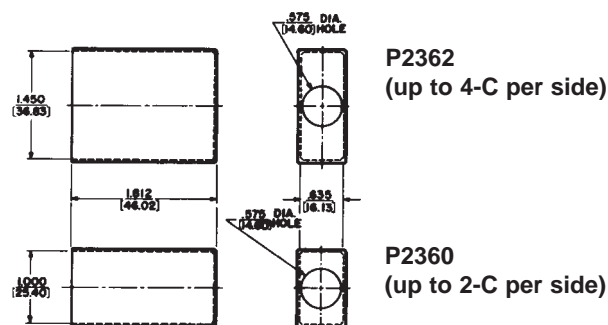
## LEVER SWITCHES (CONTINUED)



SERIES 41000

LT® SWITCH  
SERIES 41000

## MOLDED DUST COVER

LT® SWITCH  
SPECIFICATIONS**Frame:** Steel, plated.**Bushing and Actuator:** Copper alloy, plated.**Springs:** Copper alloy.**Contact Ratings:** Welded cross bar palladium contacts rated at 2A, 200W maximum, AC non-inductive load are standard. See "SPECIAL ORDER FEATURES".**Terminals:** Tin dipped solder lugs.**Mounting Hardware:** Supplied with one copper alloy-plated hex locknut (P10531); and one non-turn washer (P10639).**Insulation:** Rigid plastic spacers with plastic tubing through

the stack assembly. Lifters of thermoplastic.

**Lifter-Roller Assembly:** Molded plastic.**Knob:** Supplied with a paddle style, screw-on black plastic knob. See "SPECIAL ORDER FEATURES".**Temperature Range:** -22°F to 158°F (-30°C to +70°C).**Leakage Resistance:** 1,000 MΩ or greater.

## MOLDED DUST COVERS

Dust cover is an environment and electrical shield, protecting and improving appearance and increasing switch dependability. Covers enshroud complete switch, preventing build-up of dust, dirt, contamination.

## SPECIAL ORDER FEATURES

1. Talk-Listen (Intercom) function.
2. Fine silver and other alloys available for contacts.  
See page 294.
3. UL recognized switches. See page 294.

## LT® SWITCH PART NUMBERS

## 2 POSITION NON-LOCKING\*

Part Numbers	Switching	Stack Heights Dimension "X" max.
◇41203	1-C	.531 (13.49)
41206	2-C	.531 (13.49)
◇41208	4-A	.615 (15.62)
41212	4-C	.750 (19.05)

## 3 POSITION NON-LOCKING\*

	Position 1	Position 2	Dim. "Y"	Dim. "X"
◇41306	1-C	1-C	.531 (13.49)	.531 (13.49)
◇41308	2-A	2-A	.500 (12.7)	.500 (12.7)
41312	2-C	2-C	.531 (13.49)	.531 (13.49)
41324	4-C	4-C	.750 (19.05)	.750 (19.05)

\*Add suffix "L" to part number for locking type.

To avoid ordering special switches, order a larger standard circuit, providing the circuit meets your requirements.

◇ Special order only; contact Switchcraft.

DIMENSIONS ARE FOR REFERENCE ONLY

Inch  
(mm)

## GENERAL PURPOSE STACK SWITCHES

GENERAL PURPOSE STACK SWITCHES  
(SPECIAL ORDER ONLY)

Complete general purpose stack switch assemblies are made from a pile-up of various actuator springs, contact springs and lifters. These stack switch assemblies can be used on manually operated control devices where switching is operated by cams, push-buttons and other similar mechanical devices. The stack switch assembly is made up of an actuator spring and various contact springs. These current carrying members are insulated from each other by phenolic spacers with plastic tubing press fitted through the stack; thereby insuring correct alignment of contacts and providing high insulation resistance when mounted.

The types of General Purpose Stack Switch Components available are:

- .375" (9.52 mm) mounting centers
- .250" (6.35 mm) mounting centers
- "Tini-Stack" Switches .188" (4.78 mm) mounting centers
- Telephone Relay Type Switches .250" (6.25 mm) mounting centers

## STACK SWITCH COMPONENTS

Switchcraft offers various stack switch components, such as contact springs, spacers, lifters, etc., in many lengths, thicknesses, mounting centers and other details.

Switchcraft can assemble components into innumerable different stack switch assemblies. It is impossible to catalog every type of stack that has been manufactured. Stack switch assemblies can be designed to meet UL requirements, but only as part of equipment.

## .375" STACK SWITCHES



Thousands of switching combinations are possible. Switch mounting centers are .375" (9.52 mm) (minimum) with .25" (6.35 mm) wide switch parts. Practical spring length is 2.625" (66.68 mm) (maximum). Contact Switchcraft for selection of contacts and ratings.

## .250" (6.35 MM) STACK SWITCHES



Thousands of switching combinations are possible with slightly smaller parts. Mounting centers are .250" (6.35 mm) (minimum) with .188" (4.78 mm) wide parts. Practical spring length is 2.125" (53.98 mm) (maximum). Contact Switchcraft for selection of contacts and ratings.

## MINIATURE .188" (4.78MM) STACK SWITCHES



Many Tini-Stack® switching combinations are possible. Switch mounting centers are .188" (4.78 mm) (minimum). Practical spring length is 1.750" (44.45 mm) (maximum).

## SPECIFICATIONS

**Springs:** Copper alloy, in most standard gauge thicknesses ranging from .006" (0.15 mm) to .016" (0.41 mm).

**Spacers:** Rigid plastic, available in thickness of .015" (0.38 mm), .032" (0.81 mm) and .046" (1.17 mm).

**Contacts:** Welded cross bar palladium rated at 2A, 200W AC non-inductive load. Gold alloy generally recommended for "dry" circuit applications.

**Tubing:** Thermoplastic.

**Lifters:** Thermoplastic.

**Mounting Hardware:** Pressure plate, twin nut and screws: Steel, plated.

## TELEPHONE RELAY TYPE SWITCHES



Compact stack switches are particularly suitable for low activating force, such as in relay and magnetic operated devices. Contact Switchcraft for selection of contacts and ratings.

## SPECIFICATIONS

**Springs:** Copper alloy, in thicknesses ranging from .006" (0.15 mm) to .012" (0.30 mm).

**Spacers:** Rigid plastic is standard in thickness of .031" (.79 mm), .047" (1.19 mm) and .063" (1.60 mm).

**Contacts:** Fine silver or welded cross bar palladium are standard. Palladium or gold alloy are generally recommended for "dry" circuit applications. Other contacts available for varied customer requirements on special order.

**Tubing:** Thermoplastic.

**Lifters:** Thermoplastic.

**Bracket:** Steel, plated.

**Mounting Hardware:** Pressure plate, twin nut and screws: Steel, plated.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## GENERAL PURPOSE STACK SWITCHES (continued)

## STACK SWITCH COMPONENT SPECIFICATIONS

**1. SPRINGS** - Copper alloy in most standard gauge thicknesses of .006" (0.15 mm), .008" (0.20 mm), .010" (0.25 mm), .012" (0.30 mm), .016" (0.40 mm) and .020" (0.50 mm), a few designs can be made up to .031" (.079 mm) thick. All or any contact point hole can be provided; spring can be cut at any point.

**2. BRACKETS** - Standard brackets are detailed on drawing. Tools are flexible so that various lengths from same width stock can be provided.

**3. LIFTERS OR PUSHERS** - .125" (3.18 mm) and .188" (4.78 mm) diameter thermoplastic in various lengths staked into one of the contact point holds provides tandem action between blades or to serve as an actuator.

**4. MOUNTING HARDWARE** - Pressure plates (S1293 and S2300) twin nuts (S1008 and S1431) and screws available for mounting.

**5. LEAF INSULATORS** - Punched in same shape as springs in .015" (0.38 mm) thickness of fish paper or mylar.

**6. SPACERS** - Rigid plastic is standard in thicknesses of .015" (0.38 mm), .032" (0.81 mm), .051" (1.30 mm) and .062" (1.57 mm). Thickness of .093" (2.36 mm) is available for .375" (9.52 mm) mounting centers only. For longer surface creepage paths, use both large and standard sized spacers. High temperature insulation also available.

**7. THERMOPLASTIC TUBING** - .375" (9.52 mm) mounting centers pass #5 screw. .250" (6.35 mm) mounting centers pass #3 screw. .188" (4.78 mm) mounting centers pass #2 screw.

**8. CAM FOLLOWERS** - Two roller bracket designs (G1734 and G2298) available for springs .250" (6.35 mm) wide. Copper alloy standard. Can be furnished in various diameters and materials. Thermoplastic rollers also available.

**9. CONTACTS** - Welded cross bar contacts are commonly used for cost savings. However, riveted contacts are available. Size and material depend on circuit requirements (supply complete details). For low level audio circuits, we suggest gold alloy or palladium cross bar contacts. Springs can be bifurcated (two contacts per spring).

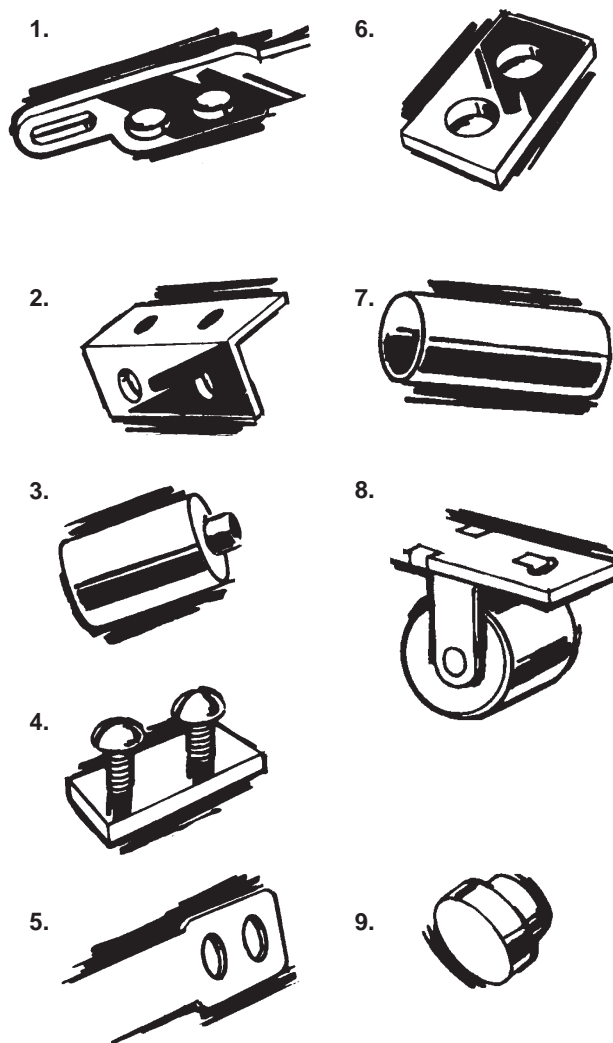
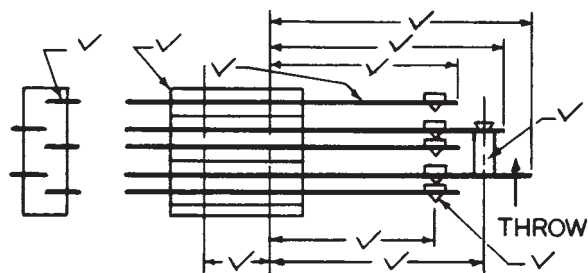
## HOW TO ORDER STACK SWITCHES

Careful consideration of the following suggestions will help specify the most economical and expeditious approach to your switching needs. On initial inquiry or order, supply the following information:

1. Simple sketch or drawing. See "Typical Stack Assembly" drawing. Give details checked that are available.
2. Current, voltage and type of switching load (resistive or inductive).
3. Frequency of operation; life requirements.
4. Details of actuator.
5. Maximum and minimum movement of actuator blade.
6. Any other important specifying details.

It is recommended that data indicated above be forwarded to Switchcraft for comments and recommendations before finalizing your design.

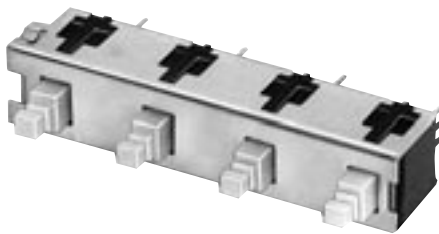
TYPICAL STACK ASSEMBLY



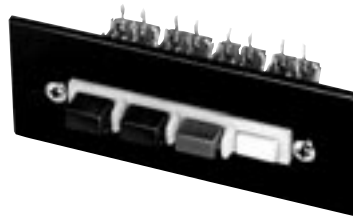
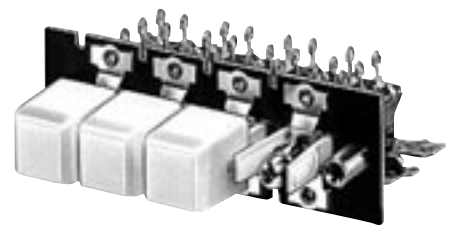
DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$



## MULTIPLE STATION SWITCHES



SERIES IBS

SERIES 65000  
DW MULTI-SWITCHSERIES 66000, 67000  
DW MULTI-SWITCH

## FEATURES

Switches are designed to meet performance requirements of sophisticated equipment such as: analog and digital computers, analyzers, transmitters and receivers, intercoms, machine and process controls, ground support systems, scientific instruments and test measurement and instrumentation.

## STANDARD MECHANICAL FUNCTIONS

**INTERLOCK** - actuating a button automatically restores to normal the button previously actuated. Lock-out feature, which prevents the mechanical operation of more than one button at a time, is standard on all interlock switches.

**NON-LOCK** - each button has momentary action. No interaction between buttons. Lock-out available on special order only.

**ALL-LOCK** - all buttons, except release, lock when depressed (accumulative lock). All buttons restored to normal by activating release button which has momentary action.

**PUSH-LOCK/PUSH-RELEASE** - pushbutton locks when depressed and is released when again depressed.

**LOCK-UP** - built-in, electrically operated solenoid locks all stations (in respective positions). Limited to operation of up to 12 stations only and energized from a remote position. Not available in push-lock/push-release.

## SPECIAL ORDER MECHANICAL FUNCTIONS

Mechanical functions on selected series can be intermixed on the same frame on special order only. Contact factory for details and availability.

Multi-Switch switches have been designed to readily accommodate "special" functions at nominal cost. Special functions are described at right.

**Intermixed functions** - the following combinations of standard functions intermixed on the same frame are available:

- Interlock and Non-Lock
- Interlock and Push-Lock/Push-Release
- All-Lock and Non-Lock
- All-Lock and Push-Lock/Push-Release
- Push-Lock/Push-Release and Non-Lock

**Lock-out function** - Refer to above description under "Interlock."

**Push-release cancelling function** - Speeds programming

and reprogramming of equipment.

**Momentary common release function** - Permits one or more momentary common release stations on switch to facilitate special operating and release sequences.

**"Split-interlock" function** - Two separate groups of inter-lock stations on the same frame offers exceptional design latitude and reduces production line time.

## GANGED ASSEMBLIES (Special Order)

Multiple row switching (ganged assemblies) with interaction between rows are available on special order. Space-saving ganged assemblies reduce production line assembly, wiring and testing time. All features of single row switching, including all standard and special features, are available. Contact Switchcraft for specifying assistance.

## PUSHBUTTONS

Illuminated and non-illuminated switches can be specified with standard or special pushbuttons. See coverage on individual series for information.

## LEGENDS

Legends can be supplied on illuminated and non-illuminated pushbuttons. Contact Switchcraft.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$



## MULTIPLE-STATION SWITCHES (continued)



**SERIES 90000, 920000**  
**TINI DW MULTI-SWITCH**



**SERIES 35000**  
**LITTEL® MULTI-SWITCH**



**SERIES 37000, 38000**  
**LITTEL® MULTI-SWITCH**

## CHOOSING THE RIGHT MULTIPLE-STATION SWITCH

Switch Series	Mechanical Functions <sup>1</sup>	Stations (Maximum)	Switching Per Station (Maximum)	Contact Rating <sup>2</sup>	Lighting	Accessories <sup>3</sup>
<b>35000</b>	ILO, N, A, PL/PR	18	6PDT	2A AC, 200W	No	C, G, M, P, S, PC/WW
<b>36000</b>	ILO, N, A, PL/PR	18	6PDT	2A AC, 200W	No	C, G, M, P, S, PC/WW, LWO
<b>37000</b>			4PDT		Yes	
<b>38000</b>			3PDT		Yes	
<b>65000</b>	ILO, N, A, PL/PR	18	4PDT	3A AC, 0.5A DC	No	C, G, M, S, PC/WW
<b>66000</b>	ILO, N, A, PL/PR	18	4PDT	3A AC, 0.5A DC	No	C, G, M, S, PC/WW
<b>67000</b>					Yes	
<b>90000</b> <b>92000</b>	ILO, N, A	12 - ILO, A 18 - N, PL/PR	8PDT	0.5A 28V AC or DC	No	M
<b>IBS</b>	I, N	12	2PDT	.125A, 125 VAC or 28 VDC	No	P, M

1. I = interlock, ILO = interlock with lockout, N = non-lock (momentary), A = all-lock (special order), PL/PR = push-lock/push-release.

2. Non-inductive load.

3. C = optional switch contact, G = ganged assemblies, M = special/mixed functions, P = optional pushbuttons, S = solenoid release, PC/WW = PC and wire-wrapping terminals, LWO = lighting wiring options.

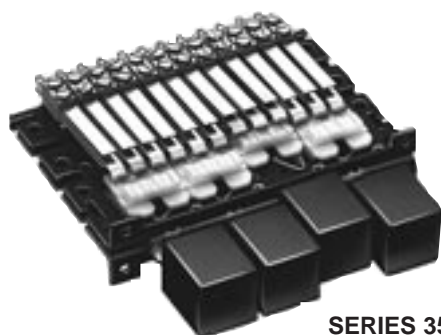
## ORDERING

Order switches by part number in this section.

For any optional or special order feature, contact Switchcraft.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## MULTIPLE-STATION SWITCHES (continued)

LITTEL® MULTI-SWITCH  
SERIES 35000

SERIES 35000

Specify 1 to 18 stations (non-illuminated) with a large selection of mechanical functions, choice of pushbuttons, and up to 6 poles of switching per station. Plungers are on .625" (15.88 mm) centers and are made from .050" (1.27 mm) x .187" (4.75 mm) steel. A square black pushbutton, A592, is supplied with each station. A wide variety of special mechanical functions, features and accessories are also available.

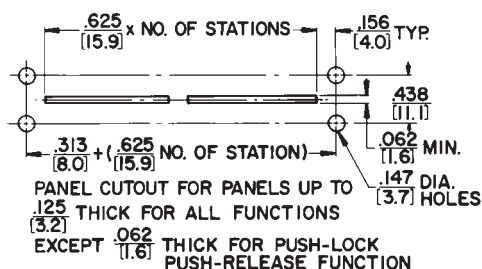
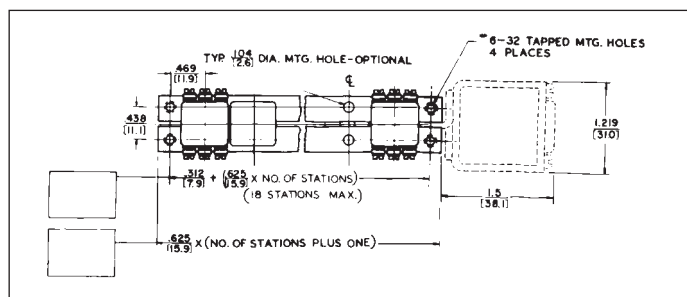
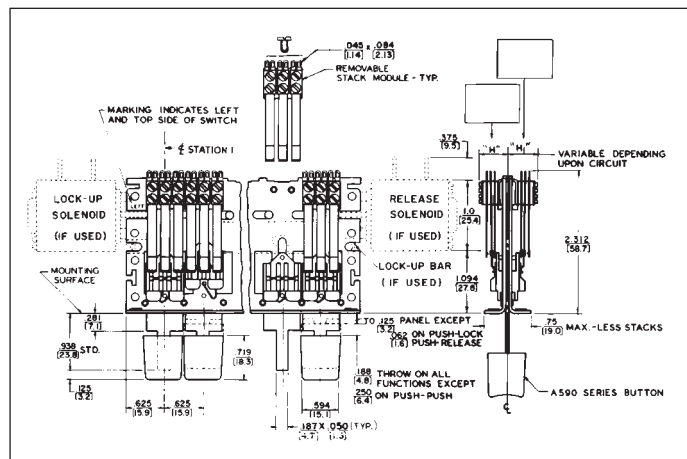
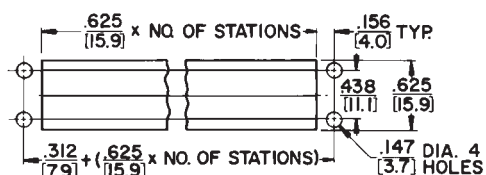
ORDERING INFORMATION  
STANDARD SWITCHES

Order by part number from tables.

## SPECIAL SWITCHES

Many special mechanical functions, features and accessories are available. Contact Switchcraft.

- Ganged Assemblies • Pushbuttons
- Special Mechanical Functions • Legends
- Switch Stacks • Accessories
- PC and Wire-Wrapping Terminals

TYPICAL PANELS DIMENSIONS  
SERIES 35000FIGURE A - PANEL CUTOUT FOR  
PLUNGER CLEARANCE ONLYFIGURE B - PANEL CUTOUT FOR  
SERIES A590 PUSHBUTTON CLEARANCE ONLYPART NUMBERS/2-C PER STATION<sup>1</sup>

Interlock with Lock-Out	Non-Lock	Push-Lock/ Push-Release	Number of Stations <sup>2</sup>
35021K206	35022206	35027206	2
35041K206	35042206	35047206	4
35061K206	35062206	35067206	6
35081K206	35082206	35087206	8
35101K206	35102206	35107206	10
35121K206	35122206	35127206	12

PART NUMBERS/4-C PER STATION<sup>1</sup>

35021K212	35022212	35027212	2
35041K212	35042212	35047212	4
35061K212	35062212	35067212	6
35081K212	35082212	35087212	8
35101K212	35102212	35107212	10
35121K212	35122212	35127212	12

- Switches with all-lock function are available on special order. Contact Switchcraft.
- Odd number of stations (3, 5, 7, 9, 11) are available. Switches with 13 through 18 stations are also available. Contact Switchcraft.

◇ Special order only; Contact Switchcraft for price and delivery information.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## MULTIPLE-STATION SWITCHES (continued)

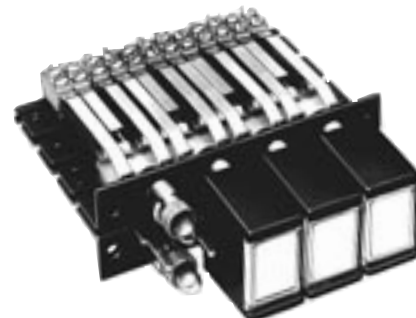
### LITTEL® MULTI-SWITCHES SERIES 36000, 37000, 38000



**SERIES 36000 - NON-ILLUMINATED**



**SERIES 37000 - SINGLE LAMP**



**SERIES 38000 - TWIN LAMPS**

#### SERIES 36000

Identical to Series 37000, except non-illuminated. Pushbuttons match Series 37000 and 38000 Switching up to 6PDT.

#### SERIES 37000

Same as Series 35000, but features large, rectangular face pushbuttons, illuminated by one lamp and having large legend area. Switching is up to 4PDT. Switch stations are on .625" (15.88 mm) centers, and depth behind panel is 2.313" (58.75 mm). Black pushbutton housings have white translucent inserts, white legend insert, two support inserts, and transparent display screen. Other pushbuttons and combinations are possible; see pages 316 and 317.

On 2-C per station switches, each station includes two, 83P switch stacks and one H83P lighting stack, and one convenience lighting spring. Contact ratings: 2A, 200W maximum AC non-inductive load.

On 4-C per station switches, each station has 4, 83P switch stacks, one H83P lighting stack, and one convenience lighting spring. "L" and "M" lighting arrangements can be effected by wiring directly to the H83P and H lighting stacks.

Each switch station uses an industry standard T 1-3/4 lamp (not supplied). Special features such as ganged assemblies, solenoid release, and T-1 lamp adapter are available; contact Switchcraft. See pages 316 and 317 for special effects display screen and inserts.

#### SERIES 38000

Similar to Series 37000, except features twin lamp illumination at each station for redundant or 2-color, split-face (alternate) lighting.

On 2-C per station switches, each station includes 3, H83P lighting switch stacks and 1 lighting spring. This provides up to 3PDT circuitry (1 pole is needed for lighting lamps; lamps not supplied). Contact ratings: 2A, 200W maximum AC non-inductive load.

On 4-C per station switches, each station has three, H83P, two, 83P switching stacks and one lighting spring. This offers

5PDT circuitry (1 pole is required for lighting lamps). two, T 1-3/4 lamps per station are used (lamps are not supplied). Ganged assemblies and solenoid releases are available; contact Switchcraft. See pages 316 and 317 for special effects display screens and inserts.

#### LIGHTING

Series 37000 and 38000 can be used in control systems where the light is either "ON", or "OFF" or permanently "ON".

One or any combination of the three lighting arrangements listed below can be specified on a switch. NOTE: Standard switches ordered from tables can be wired for "L", "M" or "N" type lighting.

TYPE	DESCRIPTION
"L"	Pushbuttons light in the "IN" position.
"M"	Pushbuttons light in the "OUT" position.
"N"	Pushbuttons light in the "IN" and "OUT" positions.

#### ORDERING STANDARD SWITCHES

Order by part number from tables.

#### SPECIAL SWITCHES

Many special mechanical functions, features and accessories are available. Contact Switchcraft for special order items.

- Ganged Assemblies • Special Mechanical Functions
- Special Color Displays • Pushbuttons
- Legends • Switch Stacks
- Wiring Lighting Options • PC and Wire-wrapping Terminals
- Accessories

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## MULTIPLE-STATION SWITCHES (continued)

## LITTEL® MULTI-SWITCHES

SERIES 36000, 37000, 38000 (continued)

## SERIES 37000

PART NUMBERS / 2-C PER STATION<sup>1</sup>

Interlock with Lock-Out	Non-Lock	Push-Lock/ Push-Release	Number of Stations <sup>2</sup>
◇37021K1206	◇370221206	◇370271206	2
◇37041K1206	◇370421206	◇370471206	4
◇37061K1206	◇370621206	◇370671206	6
◇37081K1206	◇370821206	◇370871206	8
◇37101K1206	◇371021206	◇371071206	10
◇37121K1206	◇371221206	◇371271206	12

PART NUMBERS / 4-C PER STATION<sup>1</sup>

◇37021K1212	◇370221212	◇370271212	2
◇37041K1212	◇370421212	◇370471212	4
◇37061K1212	◇370621212	◇370671212	6
◇37081K1212	◇370821212	◇370871212	8
◇37101K1212	◇371021212	◇371071212	10
◇37121K1212	◇371221212	◇371271212	12

- Switches with all-lock function are available on special order. Contact Switchcraft.
  - Odd number of stations (3, 5, 7, 9, 11) are available. Switches with 13 through 18 stations also available. Contact Switchcraft.
- ◇ Special order only; Contact Switchcraft for price and delivery information.

## SERIES 38000

PART NUMBERS / 2-C PER STATION<sup>1</sup>

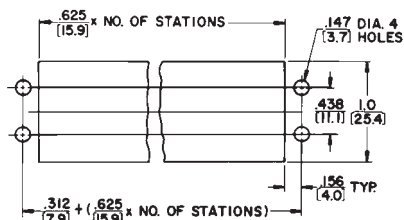
Interlock with Lock-Out	Non-Lock	Push-Lock/ Push-Release	Number of Stations <sup>2</sup>
◇38021K1206	◇380221206	◇380271206	2
◇38041K1206	◇380421206	◇380471206	4
◇38061K1206	◇380621206	◇380671206	6
◇38081K1206	◇380821206	◇380871206	8
◇38101K1206	◇381021206	◇381071206	10
◇38121K1206	◇381221206	◇381271206	12

PART NUMBERS / 4-C PER STATION<sup>1</sup>

◇38021K1212	◇380221212	◇380271212	2
◇38041K1212	◇380421212	◇380471212	4
◇38061K1212	◇380621212	◇380671212	6
◇38081K1212	◇380821212	◇380871212	8
◇38101K1212	◇381021212	◇381071212	10
◇38121K1212	◇381221212	◇381271212	12

- Switches with all-lock function are available on special order. Contact Switchcraft.
  - Odd number of stations (3, 5, 7, 9, 11) are available. Switches with 13 through 18 stations also available. Contact Switchcraft.
- ◇ Special order only; Contact Switchcraft for price and delivery information.

## TYPICAL PANEL OPENING



## MATERIAL SPECIFICATIONS

Frame: Steel, dry film lubricant.

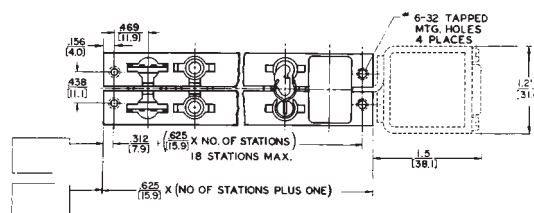
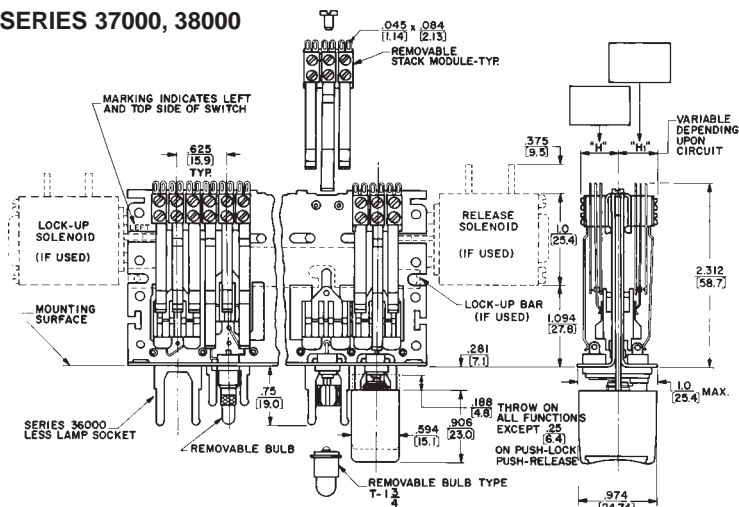
Plungers, Stack Switch Mounting Brackets and Screws: Steel, plated.

Stack Switches: Stack switch springs are made of copper alloy. Solder lugs are hot tin-dipped.

Insulation: Stack switches: rigid plastic spacers with plastic tubing through stack.

Lifters: Thermoplastic.

## SERIES 37000, 38000

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## MULTIPLE-STATION SWITCHES (continued)

## SPECIAL EFFECTS COLOR DISPLAY SCREENS AND INSERTS

Display screens and inserts are offered in a wide choice of colors for SERIES 37000 and 38000 Littell Multi-Switch switches. Display screens with high-lights are useful in high ambient lighting; or display screens with soft, uniform, and diffused lighting for use under low ambient lighting conditions. Order display screens, inserts and filters separately. See Part Number Chart below.

**A Series 401 Display Screen****B Series 404**

Legend insert recesses into display screen. Omit when split-face inserts are used.

**Part Number 404 05**

White legend insert has a matte finish on one side suitable for in-the-field marking.

**C Part Number 404 12 Retaining Insert**

Clear insert snaps into display screen from rear to retain legend inserts. Omit when split-face inserts are used.

**D Series 407 Split-Face Insert**

Use with Series 38000

**E Series 402 Color Filter Inserts**

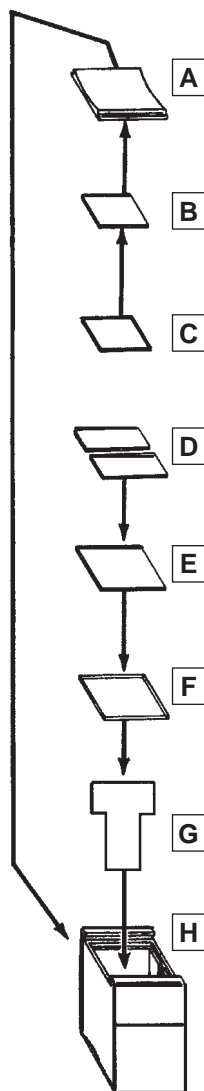
White insert used with blue, white and clear display screens; clear insert used with red, green and yellow. All color filters are omitted where split-face insert is used.

**F Part Number 402 12 Heat Shield Insert**

Clear filter insert snaps into push-button housing. Must be used in every pushbutton assembly.

**G Part Number 406**

Light Divider Recesses into pushbutton housing. For use with Series 38000.

**H Series 405 02 Pushbutton Housing.**

**SERIES 401 DISPLAY SCREENS** – Display screens with contoured face give a better operation “feel”. Rectangular shape provides greater area for engraving legends and symbols. Entire screen is illuminated by single or twin lamp indication. Various brightness and color combinations are possible by use of legend filter and split face inserts.

**SERIES 404 LEGEND INSERTS** – Small translucent inserts provide special color effects. White colored insert (40405) has a special matte surface for in-the-field identification with ink, pencil or lettering transfers. Special color effects can be accomplished with combination of a colored insert with a clear display screen. **IMPORTANT:** Order legend insert (40412) with every pushbutton.

**SERIES 407 SPLIT-FACE INSERTS** – Split-face inserts provide separate control or indicating functions through the use of color. Ideal for use on Series 38000 Littell Multi-Switch switches where each pushbutton can serve as two indicator lights. Up to two lamps can be used per display screen which are split lengthwise by 2-color split-face inserts. Inserts may be hot-stamped. Order (406) light divider when “flip-flop” lighting is specified; or for redundant lighting where a definite visual indication of lamp failure is desired. A frequently used combination is red and green. Red might indicate danger, stop, etc. Green, go, “okay”, etc. **IMPORTANT:** Use (40212) clear insert with a split-face insert.

**SERIES 402 FILTER INSERTS** – Inserts add greater color definition. Ideal for use under low ambient lighting conditions where brightness of illuminated pushbuttons must be minimized. A white filter insert (40205) is useful in cutting down the brightness of a white color insert and a white or clear display screen. However, it is omitted when color display screen is used. Filters also diffuse light evenly over entire face of display screen with no “hot spots” or darkened corners. **IMPORTANT:** Order clear insert (40212) for use with every color filter insert. Clear insert snaps in button housing behind a color filter insert and serves as a heat shield.

**406 LIGHT DIVIDER** – A light divider is used in the standard pushbutton housing to separate the illumination from the twin lamps used in the Series 38000 Littell Multi-Switch switches. Order a light divider for every pushbutton station in the Series 38000 where split-face lighting has been specified.

**Series 405 PUSHBUTTON HOUSINGS** – One-piece housing for all 37000 and 38000 switches. Accepts Series 401, 402, 404, 406 and 407 components. Standard color is black. Other colors available.

**ORDERING** – For variations in pushbutton configurations, contact Switchcraft.

Part No.	Figure	Color
◇40101	A	Red
◇40103		Green
◇40104		Blue
◇40105		White
◇40108		Yellow
◇40112		Clear
◇40116		“Black Screen”
◇40401	B	Red

◇ Special order only; Contact Switchcraft for price and delivery information.

Part No.	Figure	Color
◇40403	B	Green
◇40404		Blue
◇40405		White
◇40408		Yellow
◇40412	C	Clear (retaining insert)
◇40201	E	Red
◇40203		Green
◇40204		Blue
◇40205		White

Part No.	Figure	Color
◇40208	E	Yellow
◇40212	F	Clear (heat shield insert)
◇40701	D	Red
◇40703		Green
◇40704		Blue
◇40705		White
◇40708	G	Yellow
◇406		White (light divider)
40502	H	Black (housing)
40505		White

DIMENSIONS ARE FOR REFERENCE ONLY Inch  
(mm)

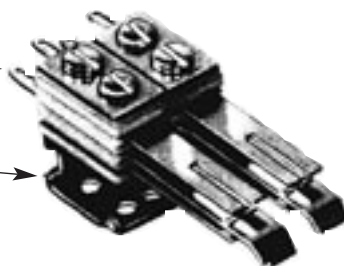


## MULTIPLE-STATION SWITCHES (continued)

## LITTEL® MULTI-SWITCH ACCESSORIES

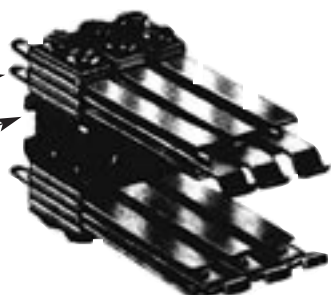
Series 60BG  
Bifurcated  
Switch Stacks

Special  
Mounting  
Bracket



Series  
80P Stacks

Mounting  
Bracket



## “TINI-STACK” SWITCHES

Many combinations of stack switches are available on special order. Contact Switchcraft for specifying assistance, including clearances for stack heights.

**SERIES 80P** - Crossbar welded palladium contacts rated: 2A, 200W maximum, AC non-inductive load. For use where contacts of a released station will return to normal before contacts of a newly operated station are actuated. Not recommended for use on push-lock/push-release function.

**SERIES 800P** - Same as Series 80P but can be used on push-lock/push-release function, or on other functions where contacts of a newly operated station must be actuated before contacts of a released station return to normal.

**SERIES 80G** - Same as Series 80P, except includes cross-bar welded gold alloy contacts rated at 1A, 100W maximum, AC non-inductive load.

**SERIES 800G** - Same as Series 80G except for push-lock/push-release and/or other functions as described for Series 800P.

## BIFURCATED “TINI-STACK” SWITCH STACKS

Double reliability through use of bifurcated switch stacks featuring bifurcated leaf springs slotted at the contact end and parallel to the long axis of the leaf spring. Separate crossbar gold alloy contacts are welded to leaf springs on each side, doubling the number of contacts on each spring.

**SERIES 60BG** - Similar to Series 80P, except bifurcated leaf springs with welded crossbar gold alloy contacts rated at 1A, 100W maximum, AC non-inductive load.

**SERIES 600BG** - Same as Series 60BG, except for use on push-lock/push-release function and/or functions as described under Series 800P.

## HIGH CURRENT “TINI-STACK” SWITCH STACKS

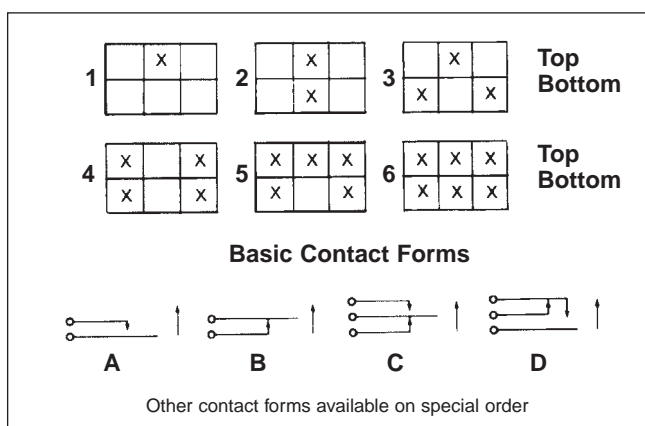
Heavy duty switch stacks Series 60W for use in 120V, AC power circuits are available with large, fine silver contacts rated at 5A, non-inductive load. Stack spacer width limits mounting to one stack/station on each side of frame and requires special mounting bracket.

For 10 and 15A switching, contact Switchcraft.

## POSITIONING SWITCH STACKS

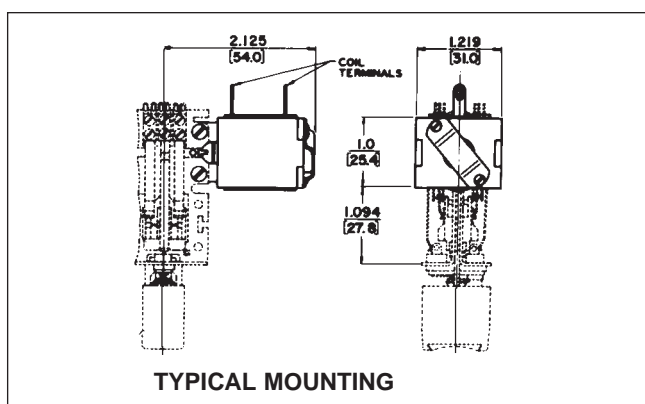
(SERIES 80P, 800P, 80G AND 800G ONLY)

Refer to chart below for proper balancing of the switch stacks mechanical load at each station, “X” denotes correct positioning of the stack on the removable switch stack bracket.



## SERIES NJ SOLENOID RELEASE

Solenoid assembly attaches to end of switch frame and provides electrical release of activated stations. Instructions and hardware furnished. Other voltages are available on special order; contact Switchcraft.



DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

### MULTIPLE-STATION SWITCHES (continued)

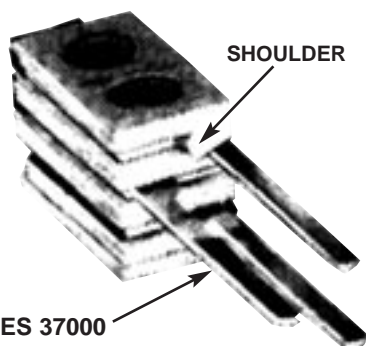
## LITTEL® MULTI-SWITCH ACCESSORIES

## WIRE-WRAPPING TERMINALS

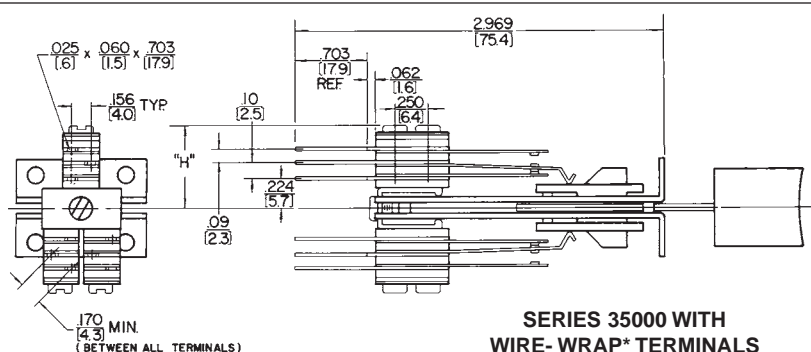
Special order wire-wrapping terminals optimize use of semi-automated termination equipment to save production line time. Terminal shoulders accommodate 1, 2 or 3 wrapped connections per terminal and prevent wrapping tool from “bottoming” (on first wrapped connection) and possibly shorting against other metal parts on switch stack. 4-C switching per station maximum.

NOTE: Stack height dimension will be greater when wire-wrapping terminals are specified. Stack height for 1-A and 1-B circuit is .516" (13.11 mm). For 1-C height is .594" (15.09 mm).

**ORDERING:** Contact Switchcraft for details.



**SERIES 37000**  
**WITH WIRE- WRAPPED**  
**TERMINALS**



**SERIES 35000 WITH  
WIRE-WRAP\* TERMINALS**  
\* Registered trademark of Gardner-Denver Co.

## LAMP SOCKETS AND ADAPTERS

**LAMP SOCKET T10** ◇

Standard on Series 37000, T10 accepts standard midget flange type T1-3/4 lamps.

**LAMP SOCKET T12** ◇

Standard on Series 38000, the T12 socket accepts standard midget flange type T1-3/4 lamps.

## LAMP ADAPTER T1

Converts sockets that accommodate standard T 1-3/4, (P1593) midget flange base lamps to accept T 1 subminiature lamps. Adapter fits T 1-3/4 lamp socket. The 2-piece adapter holds lamp securely in place to assure positive contact of lamp circuit in most environments. If you require extra long-life, specify a T 1 lamp adapter for each T 1-3/4 socket.

## PC TERMINALS

Copper alloy PC terminals are integral with associated leaf spring and feature shoulders for proper clearance from PC board and for solid mounting. Contact Switchcraft for details.

♦ Available on special order only; Contact factory for price and delivery information.

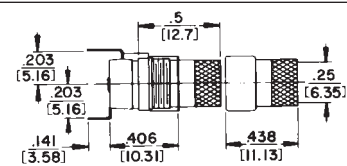
## RECOMMENDED WIRE-WRAPPING TOOLS

	(Gardner - Denver Co. Part Numbers)	
Wire Gauge	Wrapping Bit	Sleeve
#22 & #24	500131	18840
#25	500131	18840
#26	37006	17611-2

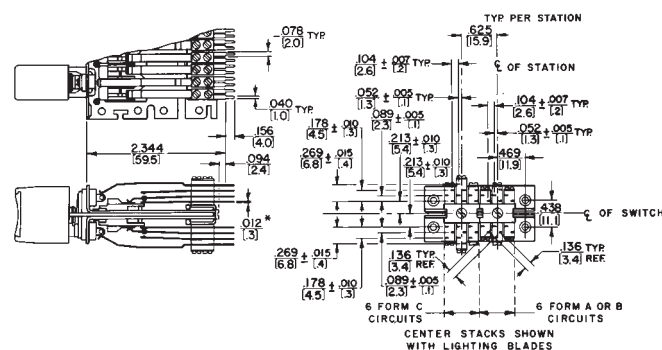
## RECOMMENDED WIRE-WRAPPING PARAMETERS

Wire Gauge	Number of Connections	Wraps Per Connection	Wire Gauge	Number of Connections	Wraps Per Connection
#22	3	4	#25	3	4
#24	3	5	#26	3	5

**LAMP SOCKET T12**



## LAMP ADAPTER T1



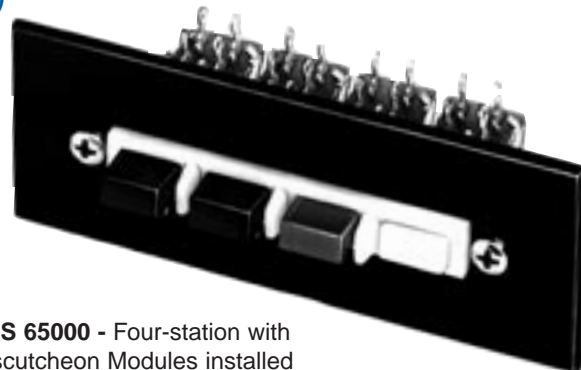
## SERIES 37000 WITH PC TERMINALS

DIMENSIONS ARE FOR REFERENCE ONLY Inch  
(mm)

## MULTIPLE-STATION SWITCHES (continued)

DW MULTI-SWITCH  
SERIES 65000

Available with up to 18 non-illuminated stations in a single row. Maximum switching per station is 4-C (4PDT). Contacts are rated: 3A, AC, 0.5A DC, 125V, non-inductive load. Integral black button is supplied with each station. Switches mount with #6 screws and nut (not furnished). Contact Switchcraft for special assemblies, with ganged assemblies, solenoid release, PC or wire-wrapping terminals, or escutcheon modules.



SERIES 65000 - Four-station with  
DW Escutcheon Modules installed

PART NUMBERS / 2-C PER STATION<sup>1</sup>

Interlock with Lock-Out	Non-Lock	Push-Lock/ Push-Release	Number of Stations <sup>2</sup>
65021K206	65022206	65027206	2
65041K206	65042206	65047206	4
65061K206	65062206	65067206	6
65081K206	65082206	65087206	8
65101K206	65102206	65107206	10
65121K206	65122206	65127206	12

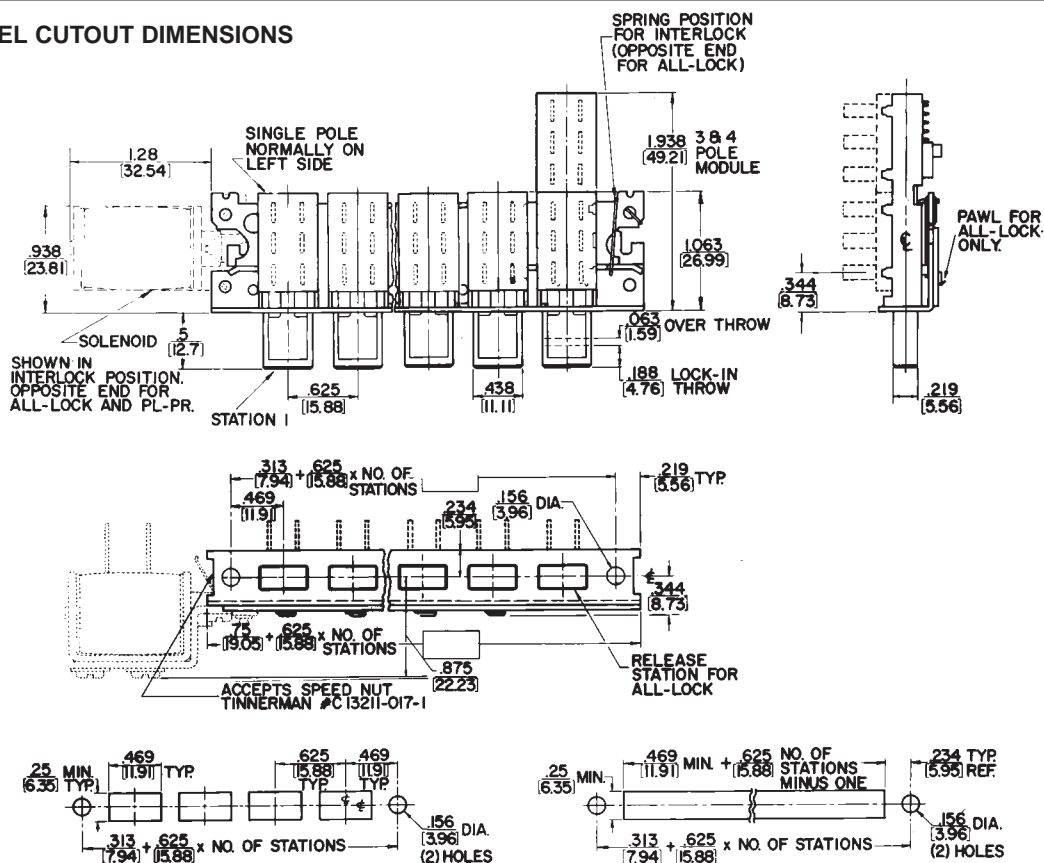
1. Switches with all-lock function are available on special order. Contact Switchcraft.  
2. Odd number of stations (3, 5, 7, 9, 11) are available. Switches with 13 through 18 stations also available. Contact Switchcraft.  
◇ Special order only; Contact Switchcraft for price and delivery information.

PART NUMBERS / 4-C PER STATION<sup>1</sup>

Interlock with Lock-Out	Non-Lock	Push-Lock/ Push-Release	Number of Stations <sup>2</sup>
65021K212	65022212	65027212	2
65041K212	65042212	65047212	4
65061K212	65062212	65067212	6
65081K212	65082212	65087212	8
65101K212	65102212	65107212	10
65121K212	65122212	65127212	12

1. Switches with all-lock function are available on special order. Contact Switchcraft.  
2. Odd number of stations (3, 5, 7, 9, 11) are available. Switches with 13 through 18 stations also available. Contact Switchcraft.  
◇ Special order only; Contact Switchcraft for price and delivery information.

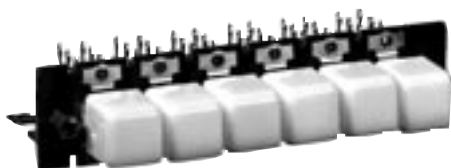
## PANEL CUTOUT DIMENSIONS



DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## MULTIPLE-STATION SWITCHES (continued)

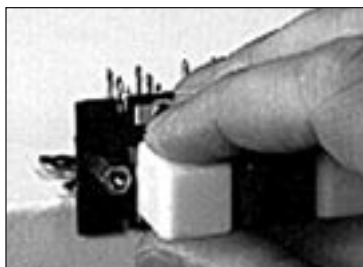
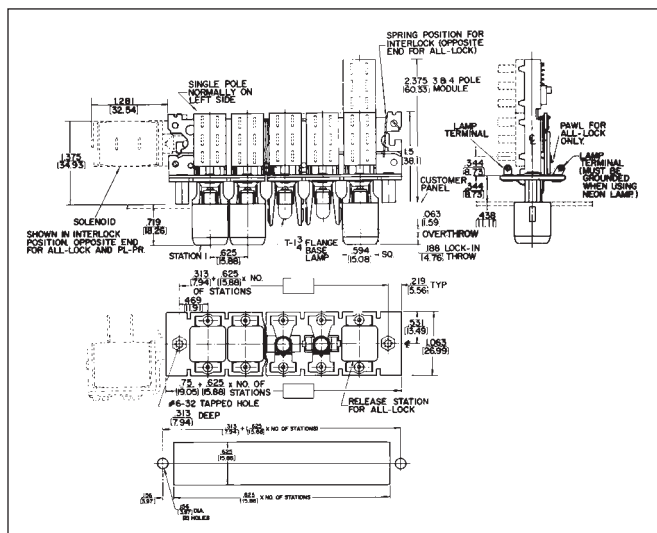
## DW MULTI-SWITCH SERIES 66000 and 67000



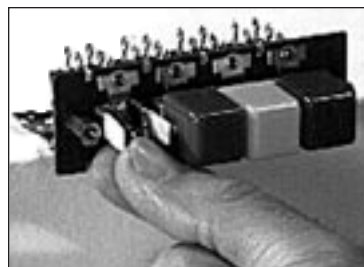
Series 66000 (non-illuminated) and 67000 (illuminated) can be supplied with up to 18 stations, including a square white pushbutton Part Number DW305 at each station. Contacts and ratings are the same as for Series 65000. Lamp sockets (67000) at each station accept 6V to 28V T 1-3/4 flange base lamps (not supplied). Mounts with 2 #6-32 machine screws (not supplied). See page 310 for pushbutton data. Accessories include solenoid release, ganged assemblies, T1 lamp adapter, and metal barriers (between stations). PC and wire-wrapping terminals are also available. Contact Switchcraft.

## NON-ILLUMINATED DW MULTI-SWITCH SWITCHES

Switchcraft offers DW Multi-Switch switches, Series 70000 and 71000 with crossbar plungers which accept a wide variety of Switchcraft and industry pushbuttons. Contact Switchcraft for specifying assistance.



**Squeeze upper and lower surfaces of pushbutton and pull free of plungers.**



**Next, grasp lamp with lamp removal tool or fingertips and snap-out. Replace lamp and pushbutton. Finished in seconds!**

## SERIES DW40 COLOR INSERTS

Many unusual lighting effects can be created using DW40 color inserts. Molded from dimensionally stable, high-temperature plastic in six standard colors, inserts slip into standard Series DW300 pushbuttons providing unusual latitude in custom designing color and legend effects. With no wear from finger-tips, legend life is virtually unlimited.

Part No.	Color	Part No.	Color	Part No.	Color
◇DW41	Red	◇DW44	Blue	◇DW47	Orange
◇DW43	Green	DW45	White	◇DW48	Yellow

♦ Special order only; Contact Switchcraft for price and delivery information.

**SERIES DW300 PUSHBUTTONS** (DW305 supplied standard)

Part No.	Color <sup>1</sup>	Part No.	Color <sup>1</sup>	Part No.	Color <sup>1</sup>
DW301	Red	DW304	Blue	DW312	Clear
DW302	Black	DW305	White	DW313	Amber
DW303	Green	DW308	Yellow	DW316	“Black-Screen”

1 Other colors available on special order. Buttons are 0.594 (15.09) x 0.594 (15.09)

PART NUMBERS/2-C PER STATION<sup>1</sup>

Interlock with Lock-Out	Non-Lock	Push-Lock/ Push-Release	Number of Stations <sup>2</sup>
67021K506	◇67022506	◇67027506	2
67041K506	◇67042506	◇67047506	4
67061K506	◇67062506	◇67067506	6
67081K506	◇67082506	◇67087506	8
67101K506	◇67102506	◇67107506	10
67121K506	◇67122506	◇67127506	12

PART NUMBERS/4-C PER STATION<sup>1</sup>

◇67021K512	◇67022512	◇67027512	2
◇67041K512	◇67042512	◇67047512	4
◇67061K512	◇67062512	◇67067512	6
◇67081K512	◇67082512	◇67087512	8
◇67101K512	◇67102512	◇67107512	10
◇67121K512	◇67122512	◇67127512	12

1. Switches with all-lock function are available on special order. Contact Switchcraft.
  2. Odd number of stations (3, 5, 7, 9, 11) are available. Switches with 13 through 18 stations also available. Contact Switchcraft.
- ♦ Special order only; Contact Switchcraft for price and delivery information.

DIMENSIONS ARE FOR REFERENCE ONLY



## MULTIPLE-STATION SWITCHES (continued)

## DW MULTI-SWITCH ACCESSORIES

## ESCUTCHEON MODULES, SERIES DW100 AND DW200

Modules are available in colors to match or contrast with Series 65000 pushbutton colors. Modules are simply slipped over the pushbuttons before the switch is mounted on the panel. Flanges on modules overlap the panel cutout and hold modules securely in place while adding only 0.02" (.051 mm) behind panel space.

One module is required for each station. Installation of the Series DW200 Modules (with barrier) is equally simple. First, place one Series DW100 Module over the pushbutton actuator on one end of the row. On the adjacent actuator, place a Series DW200 Module. Position this module so that the barrier overlaps the edge of the Series DW100 Module. Install the remaining Series DW200 modules in the same manner, with the barriers overlapping. The completed escutcheon will have barriers between adjacent pushbutton actuators, but no barriers at the ends of the rows.

Series DW-100 (without barrier)	Series DW-200 (with barrier)	Color*
◇DW101	◇DW201	Red
DW102	DW202	Black
DW05	DW205	White

\* Other colors available on special order.

◇ Special order only; Contact Switchcraft for price and delivery information.



## SPECIAL SWITCHING FORMS

In addition to 2-C and 4-C switching, other circuit forms can be supplied on special order. They are: 1-A, 2-A, 3-A, 4-A, 1-B, 2-B, 3-B, 4-B, 1-C, 3-C, 1-D, 2-D, 3-D, and 4-D.

## BARRIERS (SERIES 67000 ONLY)

As an option, (field installable) barriers can be specified and installed. Sturdy wire barriers fit between pushbuttons and prevent accidental simultaneous actuation of adjacent push-buttons. When a pushbutton is depressed, the fingertip is guided away from adjacent pushbuttons, and all pressure is applied to the correct pushbutton.

Switchcraft Part Number ◇P2359 Barriers (package of 25)

## SOLENOID RELEASE

Solenoids provide electromechanical assistance in releasing locked switch stations in switches with up to 12 stations. Release can be effected from a local or remote position. Solenoids are available for use with switches having inter-lock, all-lock, or push-lock/push-release mechanical functions. All solenoids are "pull-type". When ordered separately, solenoids are supplied with all mounting hardware. Brass terminals accept "push-on" type clips (ARK-LES #3500M20C), or wiring can be soldered directly to the lugs.

## SPECIFICATIONS

**Frame, Latch Bar, and Switch Housing:** Steel, plated.

**Mounting Studs (Series 66000 and 67000):**

Same as frame above.

**Pushbutton Actuators (Series 65000):** Molded thermoplastic.

**Pushbuttons (Series 66000 and 67000):**

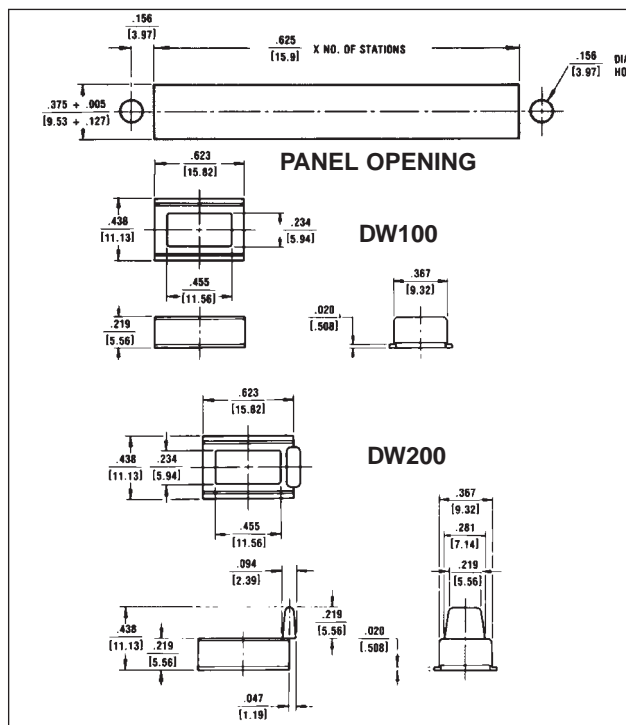
Molded thermoplastic.

**Terminals:** Copper alloy, silver-plated.

**Contactors:** Copper alloy, plated.

**Terminal Board:** Rigid plastic.

**Lamp Socket (Series 67000):** Copper alloy, plated.

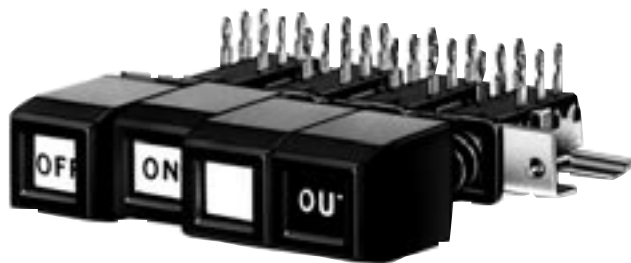


Part Number	Switch Function	Mounting*	Voltage	Coil Res. (Ohms)	Duty Cycle
◇DW1	Interlock	Left	115 AC, 60 Hz	361	20%
◇DW3	All-Lock	Right	115 AC, 60 Hz	130	10%
◇DW4	Interlock	Left	24 DC	14.2	20%
◇DW7	All-Lock or Push-Lock/Push-Release	Right	24 DC	8.96	10%

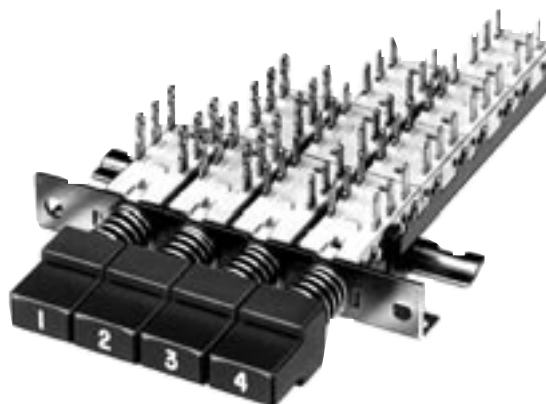
\* Direction indicates side of switch frame solenoid is mounted on (solenoid terminals up).

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$



**MULTIPLE-STATION SWITCHES (continued)**


**SERIES 92000 Switch TDW-F**  
Flip-Flop Pushbutton Installed



**SERIES 90000 with**  
A-650 Pushbuttons Installed

**TINI® DW MULTI-SWITCH — SERIES 90000, 92000**

Subminiature, multiple station switches have pushbuttons on 0.394" (10mm), 0.590" (15mm), or 0.787" (20mm) centers. Four mechanical functions: Interlock, Non-Lock, All-Lock and Push-Lock/Push-Release. Switches mount in panels up to .343" (8.71mm) thick. Switching per station is 2-C (2PDT), 4-C (4PDT), 6-C (6PDT) or 8-C (8PDT). Contact ratings: 0.5A, 28V AC or DC non-inductive. Solder lug or PC terminals.

**SERIES 90000** - Up to 18 stations on 0.394" (10mm) centers in a row. Switch mounts with 2, #3 screws (not supplied).

**SERIES 92000** - 15mm station centers. Wider spacing permits mounting Series TDWF pushbuttons.

**SPECIFICATIONS**
**ELECTRICAL**

**Switching Module Rating:** 0.5A, 28V AC or DC non-inductive load.

**Initial Contact Resistance:** 10 milliohms.

**MATERIALS**

**Frame Switch Housing:** Steel, plated.

**Latch Bar:** Stainless steel on all-lock function; zinc alloy on interlock function.

**Latch Bar Return Spring:** Tinned music wire.

**Plunger:** Molded thermoplastic.

**Plunger Return Spring:** Tinned music wire.

**Terminals/Contacts:** Copper alloy, silver-plated.

**Contact Sliders:** Bifurcated bimetal (silver on copper alloy).

**Terminal Board:** Molded thermoplastic (UL 94V-0).

**Pushbuttons:** Molded thermoplastic.

**PUSHBUTTONS**

Part Number	Color	Part Number	Color
◇A6501	Red	◇A6504	Blue
◇A6502	Black	◇A6505	White
◇A6503	Green	◇A6508	Yellow

Buttons are 0.386 (9.80 mm) x 0.386 (9.80 mm).

◇ Special order only; Contact Switchcraft for price and delivery information.

Pushbuttons for Tini DW Multi-Switch switches must be specified separately, below. Refer to page 316 for data on TWDF pushbuttons.

Series A650 pushbuttons can be specified for both Series 90000 and 92000. Legends can be specified; contact Switchcraft.

**PART NUMBERS/2-C PER STATION<sup>1</sup>**

Interlock with Lock-Out	Non-Lock	Push-Lock/ Push-Release	Number of Stations <sup>2</sup>
◇90024B06	◇90022B06	◇90027B06	2
◇90044B06	◇90042B06	◇90047B06	4
◇90064B06	◇90062B06	◇90067B06	6
◇90084B06	◇90082B06	◇90087B06	8
◇90104B06	◇90102B06	◇90117B06	10
◇90124B06	◇90122B06	◇90127B06	12

**PART NUMBERS/4-C PER STATION<sup>1</sup>**

◇90024B12	◇90022B12	◇90027B12	2
◇90044B12	◇90042B12	◇90047B12	4
◇90064B12	◇90062B12	◇90067B12	6
◇90084B12	◇90082B12	◇90087B12	8
◇90104B12	◇90102B12	◇90117B12	10
◇90124B12	◇90122B12	◇90127B12	12

<sup>1</sup> Switches with all-lock function are available on special order. Contact Switchcraft.

<sup>2</sup> Odd number of stations (3, 5, 7, 9, 11) are available. Switches with 13 through 18 stations also available. Contact Switchcraft.

◇ Special order only; Contact Switchcraft for price and delivery information.

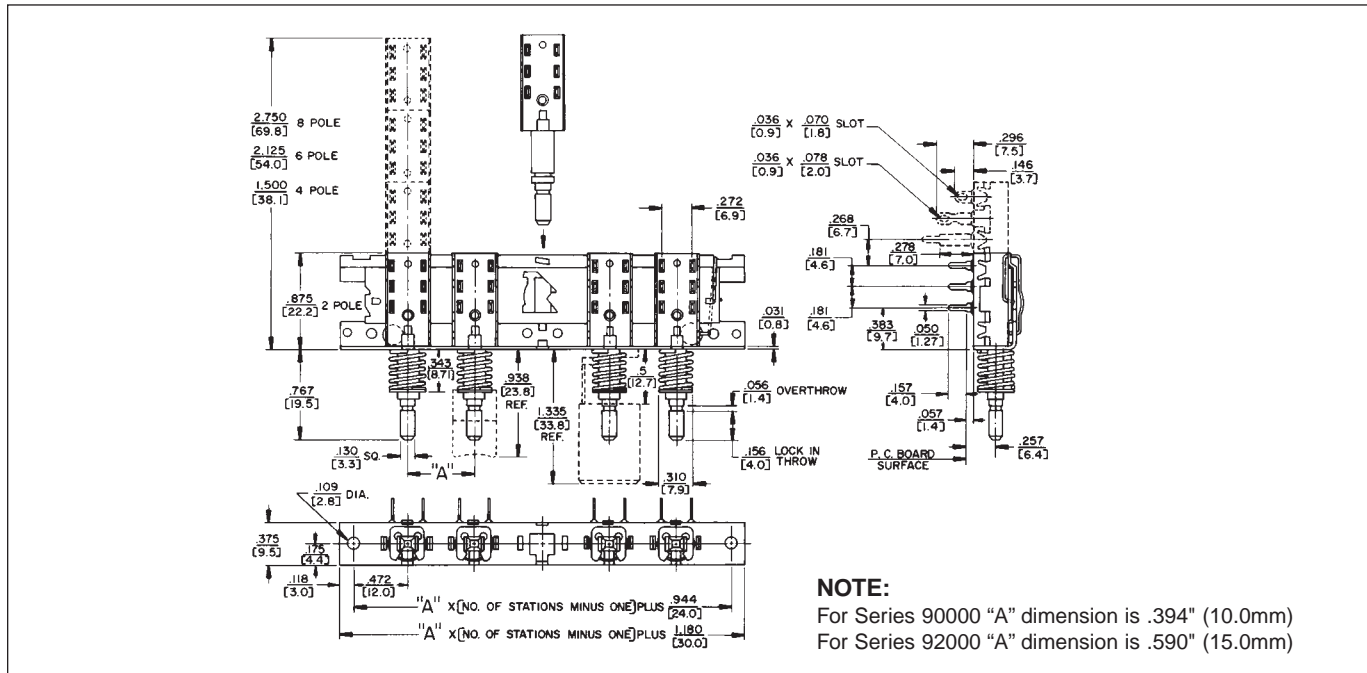
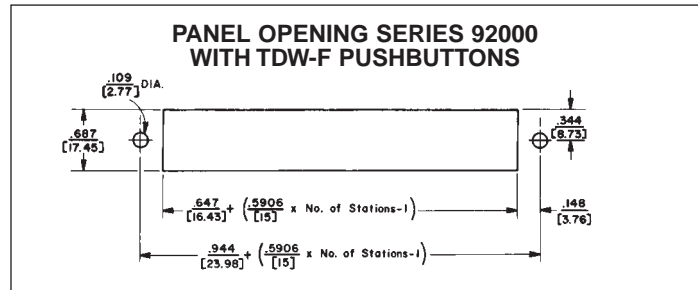
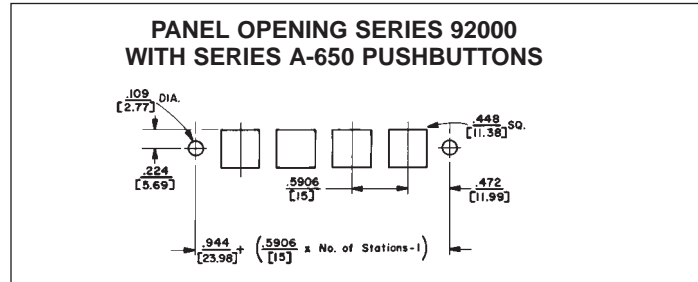
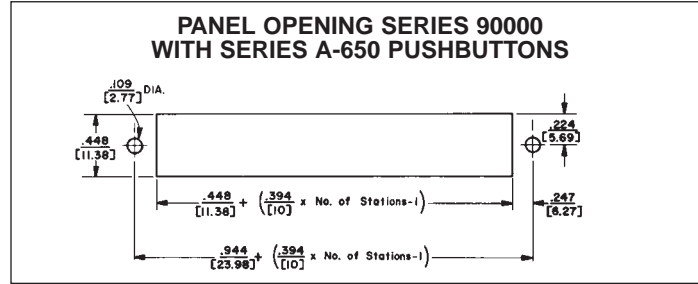
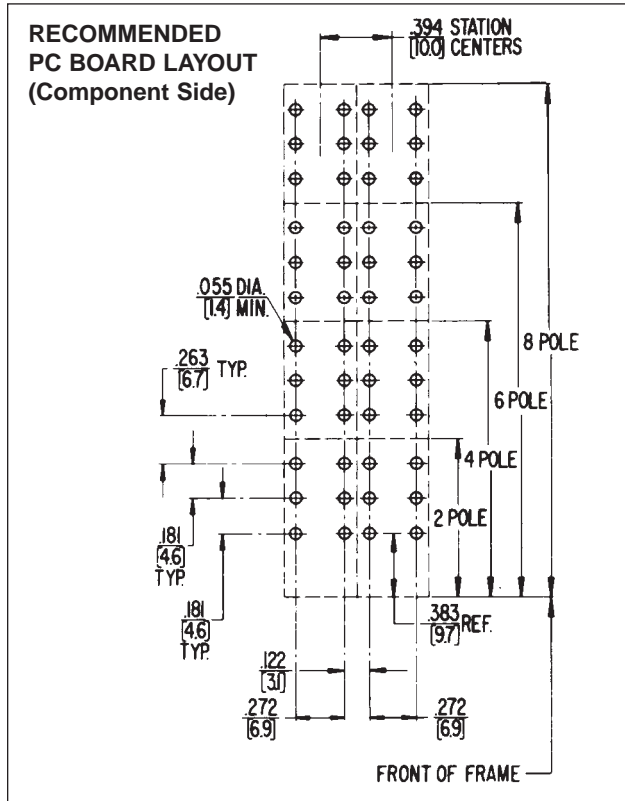
**SPECIFYING NOTE:**

Series 90000 Part Numbers are given in table. To order Series 92000 switches, substitute "2" for "0" for second digit of Part Number. Example; Part Number 92024B06 in the Series 92000 version 0.590" (15mm centers) of Part Number 90024B06 0.394" (10mm centers) interlock with lock-out, 2-C switching per station.

DIMENSIONS ARE FOR REFERENCE ONLY Inch  
(mm)

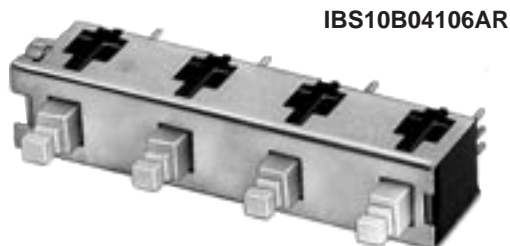
## MULTIPLE-STATION SWITCHES (continued)

### TINI® DW MULTI-SWITCH SERIES 90000 and 92000



DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## MULTIPLE-STATION SWITCHES (continued)



IBS10B04106AR



TYPE I

0.388 (9.86) x 0.216 (5.49)



TYPE II

0.464 (11.79) x 0.288 (7.32)

PART NUMBERS/0.394" (10MM) CENTERS<sup>1</sup>

Interlock	Number of Stations <sup>2</sup>
◇IBS10B02106AR	2
◇IBS10B04106AR	4
◇IBS10B06106AR	6
◇IBS10B08106AR	8
◇IBS10B10106AR	10
◇IBS10B12106AR	12

PART NUMBERS/0.590" (15MM) CENTERS<sup>1</sup>

◇IBS15B02106AR	2
◇IBS15B04106AR	4
◇IBS15B06106AR	6
◇IBS15B08106AR	8
◇IBS15B10106AR	10
◇IBS15B12106AR	12

PART NUMBERS/0.787" (20MM) CENTERS<sup>1</sup>

◇IBS20B02106AR	2
◇IBS20B04106AR	4
◇IBS20B06106AR	6
◇IBS20B08106AR	8
◇IBS20B10106AR	10
◇IBS20B12106AR	12

1. Switches with all-lock function are available on special order.  
Contact Switchcraft.

2. Odd number of stations (3, 5, 7, 9, 11) are available. Switches with 13 through 18 stations also available. Contact Switchcraft.

◇ Special order only; Contact Switchcraft for price and delivery information.

## PUSHBUTTON PART NUMBERS

Type I	Type II	Color
P2936	P2951	White
P2937	P2952	Black
P2938	P2953	Red
◇P2939	◇P2954	Yellow
◇P2940	◇P2955	Green
P2941	P2956	Blue
P2942	P2957	Gray
◇P2943	◇P2958	Brown
-	◇P2979	Cream
-	◇P2992	Tangerine

◇ Available on special order only; contact Switchcraft for price and delivery.

IBS MULTI-SWITCH SWITCHES  
SERIES IBS

Series IBS miniature pushbutton switches are mounted on common frames, up to 12 stations long with center-to-center spacing of 0.394" (10mm), 0.590" (15mm) or 0.787" (20mm). Available with interlock, non-lock (momentary) or push-lock/push-release mechanical functions. .130" (3.30mm) x .130" (3.30mm) square plungers accept a full line of industry standard pushbuttons. Switches are stocked without pushbuttons due to wide variety that can be used. Order pushbuttons separately. Switches have .157" (4mm) long PC terminals for mounting single- or double-sided PC boards up to .094" (2.39mm) thick. Close stacking (centers) permits high density within minimum front panel space.

## PUSHBUTTONS

Pushbuttons designed for IBS switches are available in white, black, red, blue and gray. Others colors are available on special order. Pushbutton faces are concave for operator convenience and can be mounted either horizontally or vertically. Pushbuttons must be ordered separately, but may be factory installed, if desired, at nominal extra cost.

## SPECIFICATIONS

## MECHANICAL

**Switch Actuation:** Momentary, interlock and push-lock/push-release.

**Plunger Travel:** .144" (3.66 mm).

**Actuation Force:** At .135" (3.43mm) travel: 12-15 oz.

## ELECTRICAL

0.125A resistive @ 125 V AC, .25 AMP at 28V DC.

## MATERIALS

**Housing:** Thermoplastic 94V-0.

**Plunger:** Thermoplastic UL 94V-0.

**Contactors:** Copper alloy.

**Terminals:** Copper alloy, solder plated. Tin-dipped available on special order.

**Contact Surfaces:** Plated.

**Frame:** Copper alloy.

**Latch Bar:** Thermoplastic.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

## MULTIPLE-STATION SWITCHES (continued)

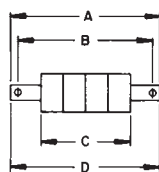
IBS MULTI-SWITCH SWITCHES  
SERIES IBS

## IBS PART NUMBERING CODE

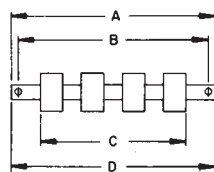
IBS	XX	X	XX	X	XX'	X	R
	CENTERS	FRAME STYLE	STATIONS	MECHANICAL FUNCTION	CIRCUITS	TERMINAL LENGTH	
	0.394" (10mm)	A - Mounting Ears	01 - 12	1 - Interlock	01 - 1A	A - 0.157"	
	0.590" (15mm)	B - No Mounting Ears		2 - Non-Lock	02 - 1B	(4mm)	
	0.787" (20mm)				03 - 1C		
					04 - 2A		
					05 - 2B		
					06 - 2C		

\* 8 stations maximum on 0.787" (20mm) centers.  
1. See page 269 for individual switch terminal conjunction.

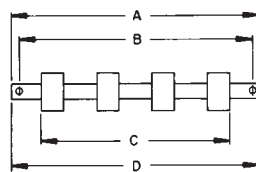
## DIMENSIONS



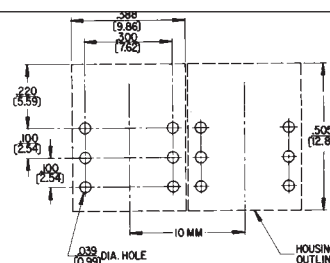
0.394" (10mm)



0.590" (15mm)



0.787" (20mm)



RECOMMENDED  
PC BOARD  
LAYOUT  
(Component Side)  
(.300 x .100)  
(7.62 mm) x (2.54)

## 0.394" (10mm) CENTERS

## STATIONS

Dimension		2	3	4	5	6	7	8	9	10	11	12
MTG. EARS	A	1.518 (38,56)	1.912 (48,56)	2.305 (58,55)	2.699 (68,55)	3.093 (78,56)	3.486 (88,54)	3.880 (98,55)	4.274 (108,56)	4.667 (118,54)	5.061 (128,55)	5.455 (138,56)
	B	1.270 (32,26)	1.663 (42,24)	2.057 (52,25)	2.451 (62,26)	2.845 (72,26)	3.238 (82,25)	3.632 (92,25)	4.026 (102,26)	4.419 (112,24)	4.814 (122,28)	5.207 (132,26)
	C	.782 (19,86)	1.175 (29,84)	1.569 (39,85)	1.963 (49,86)	2.357 (59,87)	2.750 (69,85)	3.144 (79,86)	3.538 (89,86)	3.931 (99,85)	4.325 (109,86)	4.719 (119,86)
	D	.876 (22,25)	1.269 (32,23)	1.663 (42,24)	2.057 (52,25)	2.451 (62,26)	2.844 (72,24)	3.238 (82,24)	3.632 (92,25)	4.025 (102,24)	4.419 (112,24)	4.813 (122,25)

## 0.590" (15mm) CENTERS

## STATIONS

Dimension		2	3	4	5	6	7	8	9	10	11	12
MTG. EARS	A	1.715 (43,56)	2.305 (58,55)	2.896 (73,56)	3.486 (88,54)	4.077 (103,56)	4.667 (118,54)	5.258 (133,55)	5.848 (148,54)	6.439 (163,55)	7.030 (178,56)	7.620 (193,55)
	B	1.467 (37,26)	2.057 (52,25)	2.648 (67,26)	3.238 (82,25)	3.829 (97,26)	4.419 (112,24)	5.010 (127,25)	5.600 (142,24)	6.191 (157,25)	6.782 (172,26)	7.372 (187,25)
	C	.979 (24,87)	1.569 (39,85)	2.160 (54,86)	2.750 (69,85)	3.341 (84,86)	3.932 (99,87)	4.522 (114,86)	5.112 (129,84)	5.703 (144,86)	6.294 (159,87)	6.884 (174,85)
	D	1.073 (27,25)	1.663 (42,24)	2.254 (57,25)	2.844 (72,24)	3.435 (87,25)	4.025 (102,24)	4.616 (117,25)	5.206 (132,23)	5.797 (147,24)	6.388 (162,26)	6.978 (177,24)

## 0.787" (20mm) CENTERS

## STATIONS

Dimension		2	3	4	5	6	7	8
MTG. EARS	A	1.911 (48,54)	2.699 (68,55)	3.486 (88,54)	4.274 (108,56)	5.061 (128,55)	5.848 (148,54)	6.636 (168,55)
	B	1.663 (42,24)	2.451 (62,26)	3.238 (82,24)	4.026 (102,26)	4.813 (122,25)	5.600 (142,24)	6.388 (162,25)
	C	1.175 (29,84)	1.963 (49,86)	2.750 (69,85)	3.538 (89,86)	4.325 (109,86)	5.112 (129,84)	5.900 (149,86)
	D	1.269 (32,23)	2.057 (52,25)	2.844 (72,24)	3.632 (92,25)	4.419 (112,24)	5.206 (132,23)	5.994 (152,25)

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

**MULTIPLE-STATION SWITCHES (continued)**

**MULTI-SWITCH PUSHBUTTONS**

Switch Series	Illuminated			Non-Illuminated					
	Fig. 1	Fig. 2	Fig. 3	Fig. 4	Fig. 5	Fig. 6	Fig. 7	Fig. 8	Fig. 9
Pushbutton Series¹	400⁴	409⁵	DW300⁶	A-590	E-590⁵	A-650	TDW-F	Type I	Type II
35000				X-(Std.)	X				
37000	X (Std.)	X							
38000	X (Std.)	X							
65000²									
67000			X (Std.)						
90000³						X			
92000³						X	X		
IBS³								X	X

1. Any pushbutton series can be specified with engraved legends.
2. Buttons are an integral part of switch assembly on Series 65000.
3. Switches stocked without pushbuttons due to wide variety that can be used. Order buttons separately.
4. Display screens and inserts are also available in a wide choice of colors; see "SPECIAL EFFECTS COLOR DISPLAY SCREENS AND INSERTS".
5. Double width button
6. Colored inserts are available in a wide choice of colors; see "SERIES DW40 COLOR INSERTS".

**SPECIFYING NOTE:**

Most pushbuttons can be specified in red, black, green, blue, white or yellow. "Black-Screen", amber, clear, and other colors are also possible. Contact Switchcraft with your requirements.

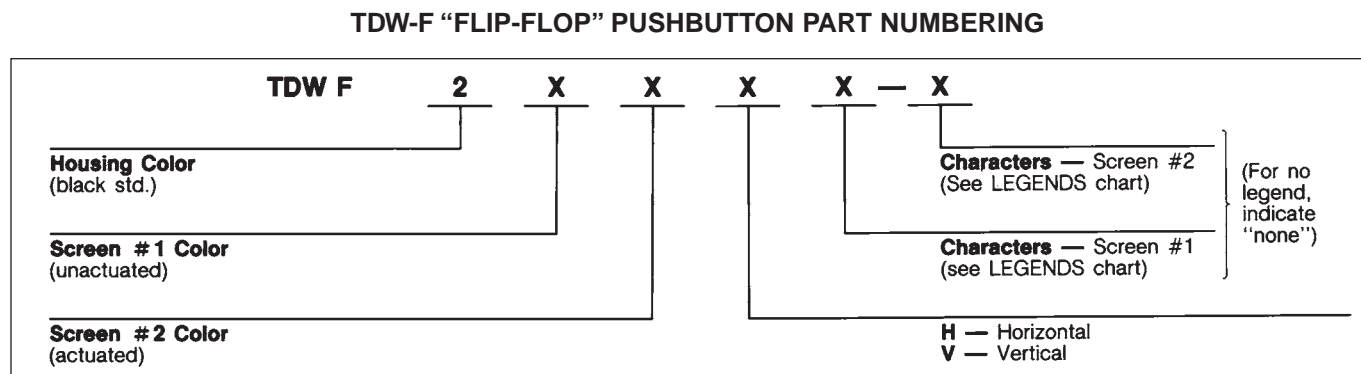
**SERIES TDWF - "FLIP-FLOP" PUSHBUTTONS**

Unique internal "flip-flop" mechanism permits button face to change colors without electrical energy, lamps or wiring. When pushbutton is operated, highly reflective panels inside housing change position and use ambient light to give a bright illuminated effect. Black pushbuttons are .59" (15mm) high x .63" (16mm) wide. Display window is .315" (8mm) x .374" (9.5mm) wide.

**NOTE:** "FLIP-FLOP" PUSHBUTTONS ARE DESIGNED FOR USE WITH SERIES 92000 SWITCHES ONLY.

Order "flip-flop" pushbuttons with Series 92000 switches.

**TDW-F "Flip-Flop" Pushbutton Part Numbering**



DIMENSIONS ARE FOR REFERENCE ONLY Inch  
(mm)



## MULTIPLE-STATION SWITCHES (continued)

## MULTI-SWITCH PUSHBUTTONS

## TDWF PUSHBUTTON LEGENDS (special order)

**Horizontally Mounted Switches:** Three, .125" (3.18 mm) high characters, each pushbutton.

**Vertically Mounted Switches:** Three, .125" (3.18 mm) high characters, each pushbutton.

## LEGEND CHARACTERS AVAILABLE

1 through 999	A through ZZZ
. Period	“ Quotes
- Short Dash	— Long Dash
← Arrow	& Ampersand
# Number or Pound	/ Slash
\$ Dollar	¢ Cent
Vertical Bar	

**NOTE:** Recommended minimum standoff for switches mounted with TDW-F pushbutton is .5" (12.7mm).

## SERIES X, Y AND Z “GLO-BUTTON”

Non-illuminated pushbuttons provide a clearly visible legend like illuminated pushbuttons - without lamps, wiring or power. With button depressed, illuminator moves up behind front screen, and legend “lights up” by efficient reflection of external ambient light. With button in “out” position, illuminator retracts and legend appears non-luminous. Series X - specify for horizontal or vertical mount switches. Series Y - legends marked across .625" (15.88 mm) dimension. For horizontal mount switches. Series Z - legends marked across .75" (19.05 mm) dimension. For vertical mount switches.

Part Number	Figure	Screen Color	Illuminator Color	Size inches (mm)	
				Width	Height
X21248◇	10	Black	Orange-Red	.5	.5
X51248◇	10	White		(12.7)	(12.7)
Y21248◇	11	Black	Orange-Red	.625 (15.88)	.75 (19.05)
Y28248◇	11	Black	Chartreuse		
Y51248◇	11	White	Orange-Red		
Z21248◇	12	Black	Orange-Red	.75 (19.05)	.625 (15.88)
Z28248◇	12	Black	Chartreuse		
Z51248	12	White	Orange-Red		

## MULTI-SWITCH PUSHBUTTON PART NUMBERS

Use the information below to specify colors of the pushbutton series desired. Series TDWF must be specified separately (see page 316).

PART NUMBER	FIGURE	COLOR	Overall Size Inch (mm)	
			Width	Height
◇40001 ◇40002 ◇40003 ◇40004 40005 ◇40008 40012	1	Red Black Green Blue White Yellow Clear	.594 (15.09)	.974 (24.7)
◇40901 ◇40902 ◇40903 ◇40904 ◇40905 ◇40908 ◇40912	2	Red Black Green Blue White Yellow Clear	1.219 (30.96)	.719 (18.26)
A591 A592 ◇A593 ◇A594 A595 ◇A596 ◇A598	4	Red Black Green Blue White Brown Yellow	.594 (15.09)	.594 (15.09)
◇E591 ◇E592 ◇E594 ◇E595 ◇E596 ◇E598	1	Red Black Blue White Brown Yellow	1.234 (31.34)	.594 (15.09)

◇ Available on special order only; contact Switchcraft for price and delivery.

DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$