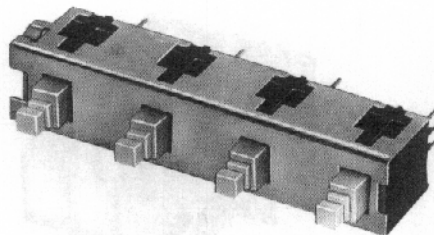
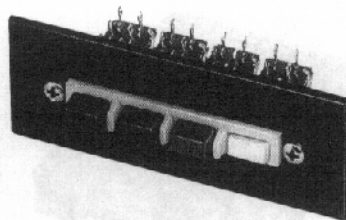
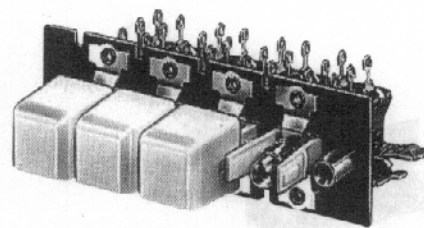


## MULTIPLE STATION SWITCHES



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

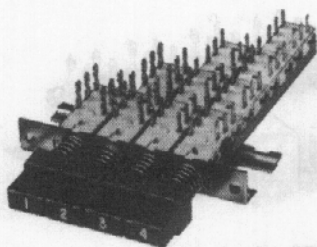
Illuminated and non-illuminated switches can be specified with standard or special pushbuttons. See coverage on individual series for information.

## LEGENDS

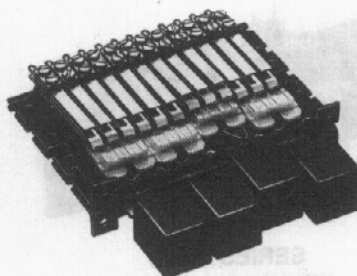
Legends can be supplied on illuminated and non-illuminated pushbuttons. Contact Switchcraft.

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

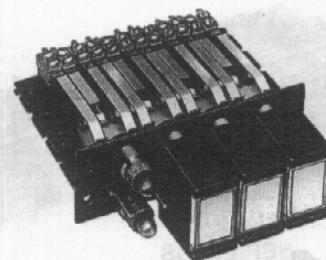
## MULTIPLE-STATION SWITCHES (continued)



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>
35000	ILO, N, A, PL/PR	18	6PDT	2A AC, 200W	No	C, G, M, P, S, PC/WW
36000	ILO, N, A, PL/PR	18	6PDT	2A AC, 200W	No	C, G, M, P, S, PC/WW, LWO
37000			4PDT		Yes	
38000			3PDT		Yes	
65000	ILO, N, A, PL/PR	18	4PDT	3A AC, 0.5A DC	No	C, G, M, S, PC/WW
66000	ILO, N, A, PL/PR	18	4PDT	3A AC, 0.5A DC	No	C, G, M, S, PC/WW
67000					Yes	
90000 92000	ILO, N, A	12 - ILO, A 18 - N, PL/PR	8PDT	0.5A 28V AC or DC	No	M
IBS	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

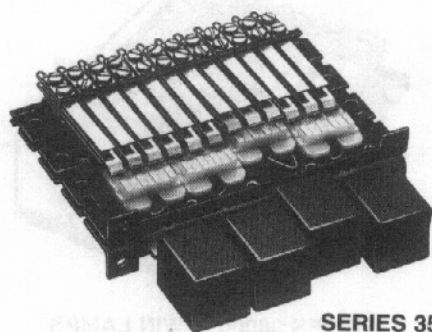
Order switches by part number in this section.

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.

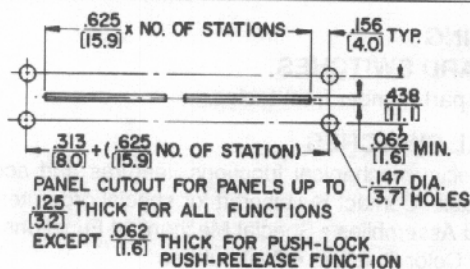
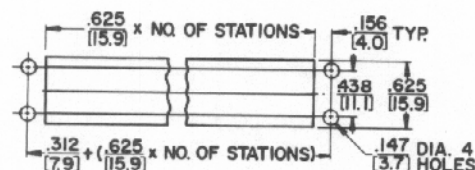
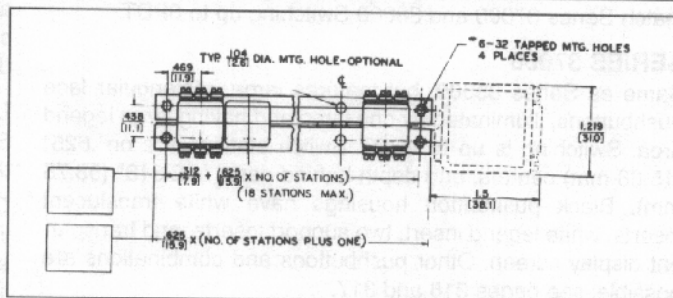
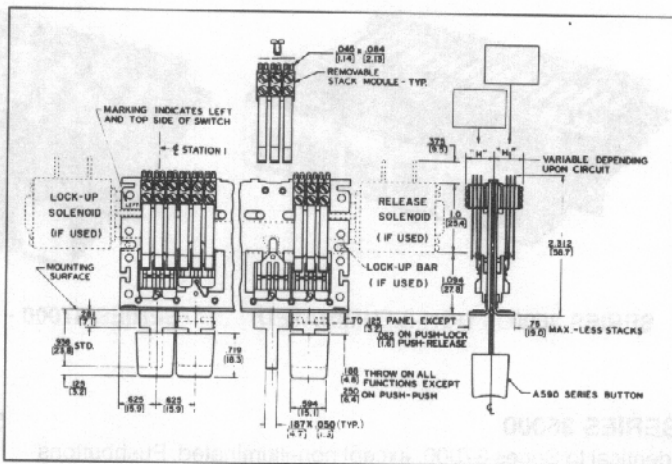
ORDERING INFORMATION  
STANDARD SWITCHES

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

FIGURE A - PANEL CUTOUT FOR  
PLUNGER CLEARANCE ONLYFIGURE B - PANEL CUTOUT FOR  
SERIES A590 PUSHBUTTON CLEARANCE ONLYTYPICAL PANELS DIMENSIONS  
SERIES 35000

## PART NUMBERS/2-C PER STATION¹

Interlock with Lock-Out	Non-Lock	Push-Lock/ Push-Release	Number of Stations²
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 STATION¹

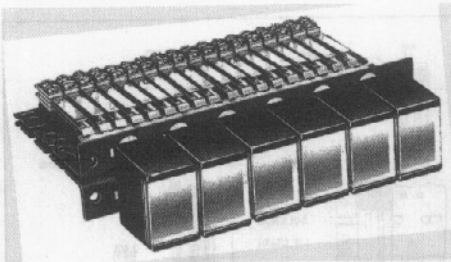
35021K212	35022212	35027212	2
35041K212	35042212	35047212	4
35061K212	35062212	35067212	6
35081K212	35082212	35087212	8
35101K212	35102212	35107212	10
35121K212	35122212	35127212	12

- 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.

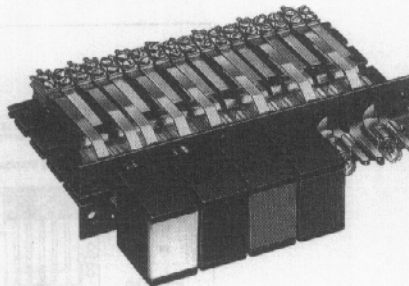
¹ Special order only; Contact Switchcraft for price and delivery information.

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

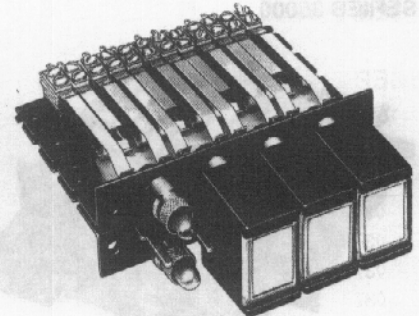
## MULTIPLE-STATION SWITCHES (continued)

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  $\frac{\text{Inch}}{(\text{mm})}$



**SERIES 36000, 37000, 38000 (continued)**

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

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

**PART NUMBERS / 4-C PER STATION\***

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

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.

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.

## MATERIAL SPECIFICATIONS

**Frame:** Steel, dry film lubricant.

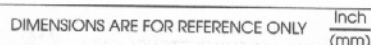
**Plungers, Stack Switch Mounting Brackets and Screws:**  
Steel, plated.

**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



## 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**

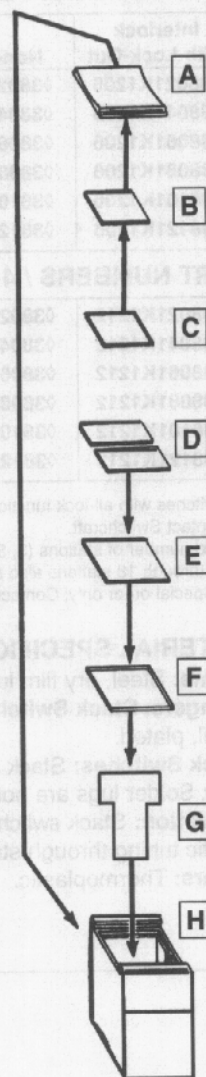
White insert used with blue, white and clear display screens; clear insert used with red, green and yellow. All color filters are omitted where split-face insert is used.

**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	B	“Black Screen”
◊40401		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)

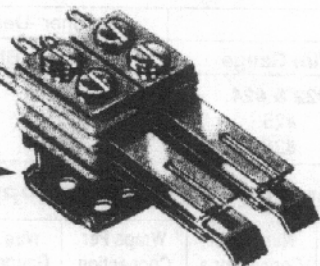
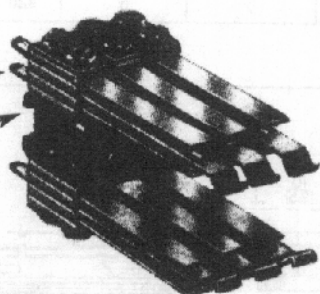
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Note: Contact your Switchcraft Representative for price and delivery



## MULTIPLE-STATION SWITCHES (continued)

## LITTEL® MULTI-SWITCH ACCESSORIES

Series 60BG  
Bifurcated  
Switch StacksSpecial  
Mounting  
BracketSeries  
80P StacksMounting  
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.

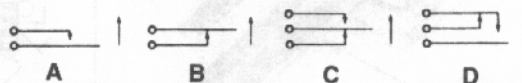
## POSITIONING SWITCH STACKS

(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.

1	<table><tr><td></td><td>x</td><td></td></tr><tr><td></td><td></td><td></td></tr></table>		x					2	<table><tr><td></td><td>x</td><td></td></tr><tr><td></td><td>x</td><td></td></tr></table>		x			x		3	<table><tr><td></td><td>x</td><td></td></tr><tr><td>x</td><td></td><td>x</td></tr></table>		x		x		x	Top Bottom
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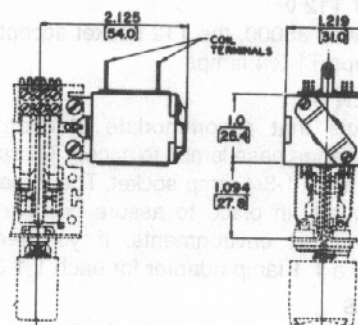
Basic Contact Forms



Other contact forms available on special order

## 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.



TYPICAL MOUNTING

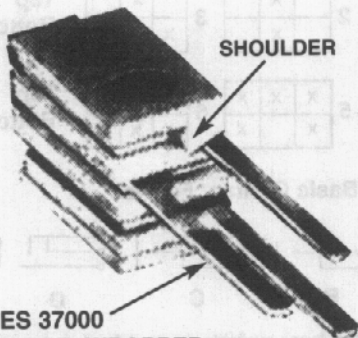
DIMENSIONS ARE FOR REFERENCE ONLY  $\frac{\text{Inch}}{(\text{mm})}$

**MULTIPLE-STATION SWITCHES (continued)**
**LITTEL® MULTI-SWITCH ACCESSORIES**
**WIRE-WRAPPING TERMINALS**

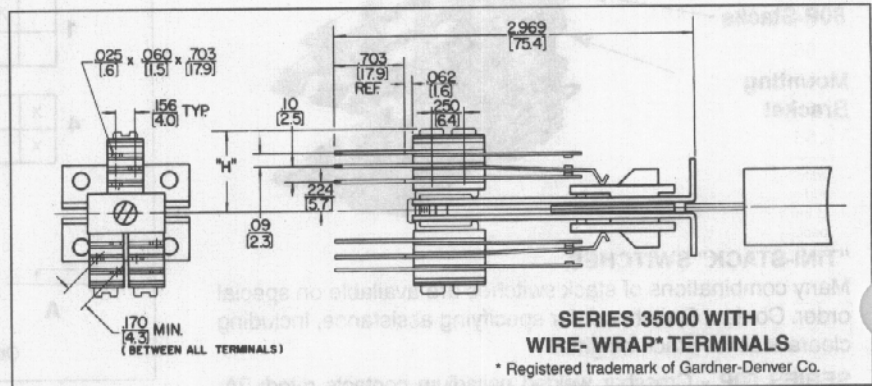
Special order wire-wrapping terminals optimize use of semi-automated termination equipment to save production line time. Terminal shoulders accommodate 1, 2 or 3 wrapped connections per terminal and prevent wrapping tool from "bottoming" (on first wrapped connection) and possibly shorting against other 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**


**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.

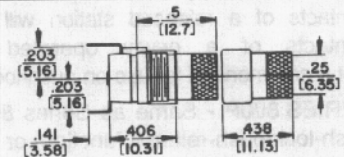
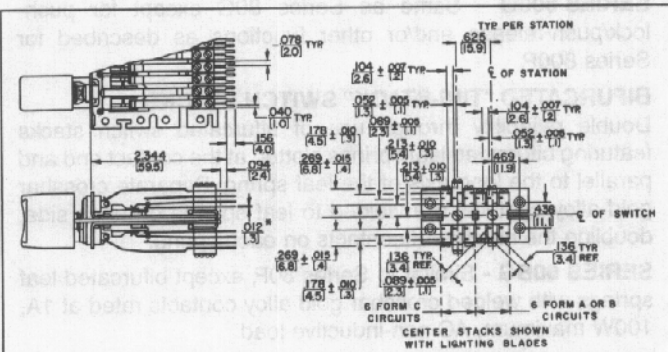
♦ Available on special order only; Contact factory for price and delivery information.

**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

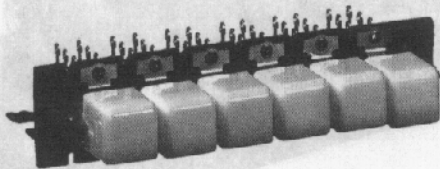
**LAMP SOCKET T12**

**LAMP ADAPTER T1**


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





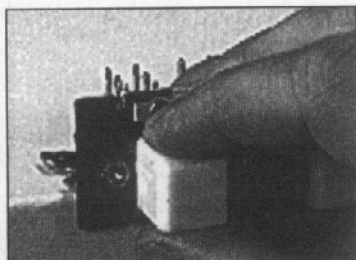
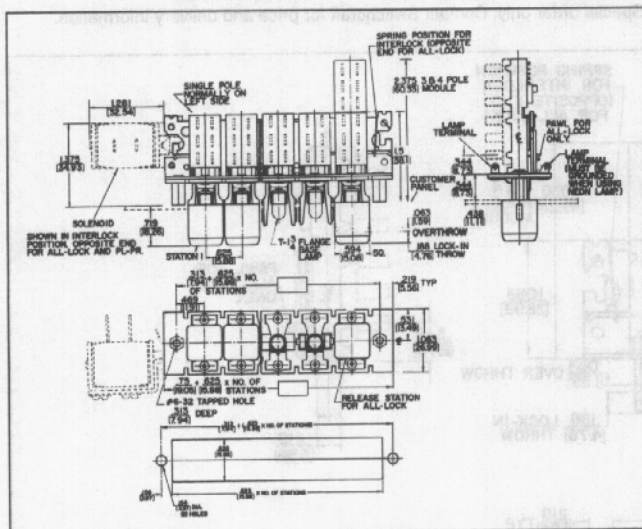
## MULTIPLE-STATION SWITCHES (continued)

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.

## 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"

<sup>1</sup> Other colors available on special order. Buttons are 0.594 (15.09) x 0.594 (15.09)

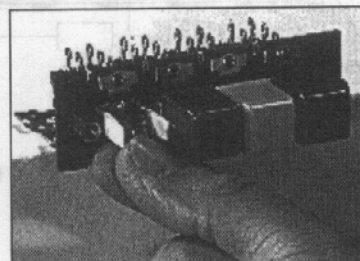
PART NUMBERS/2-C PER STATION<sup>1</sup>

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

- 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.



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

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



## MULTIPLE-STATION SWITCHES (continued)

## DW MULTI-SWITCH ACCESSORIES

## ESCUTCHEON MODULES, SERIES DW100 AND DW200

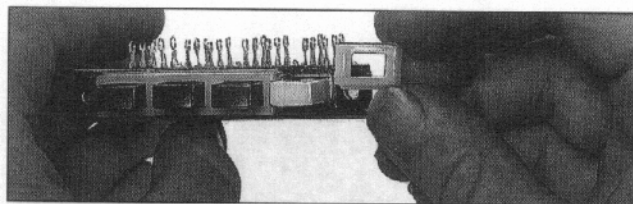
Modules are available in colors to match or contrast with Series 65000 pushbutton colors. Modules are simply slipped over the pushbuttons before the switch is mounted on the panel. Flanges on modules overlap the panel cutout and hold modules securely in place while adding only 0.02" (.051 mm) behind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

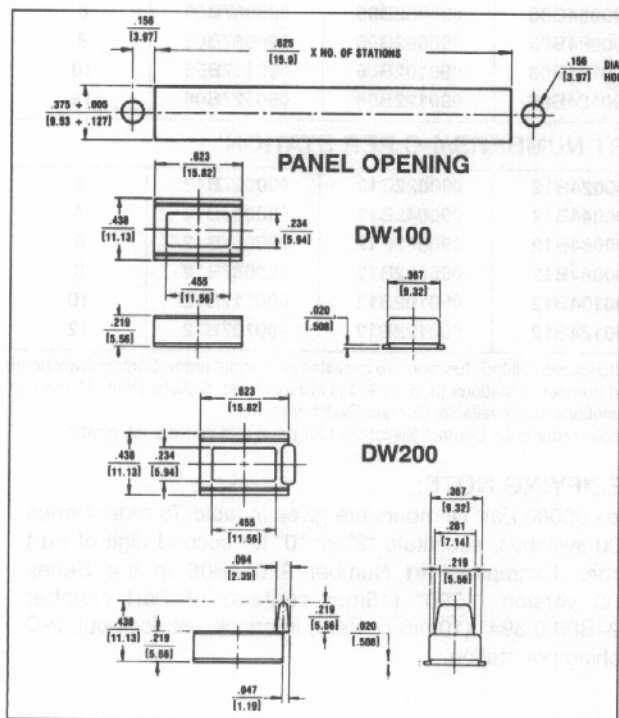
Molded thermoplastic.

Terminals: Copper alloy, silver-plated.

Contactors: Copper alloy, plated.

Terminal Board: Rigid plastic.

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

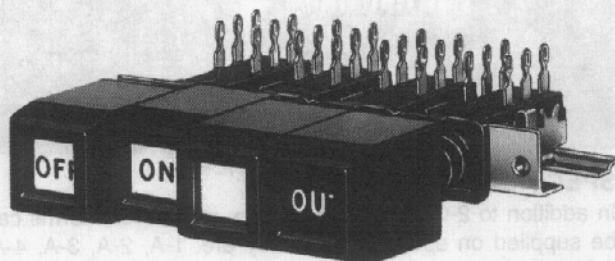


Part Number	Switch Function	Mounting*	Voltage	Coil Res. (Ohms)	Duty Cycle
◇DW1	Interlock	Left	115 AC, 60 Hz	361	20%
◇DW3	All-Lock	Right	115 AC, 60 Hz	130	10%
◇DW4	Interlock	Left	24 DC	14.2	20%
◇DW7	All-Lock or Push-Lock/Push-Release	Right	24 DC	8.96	10%

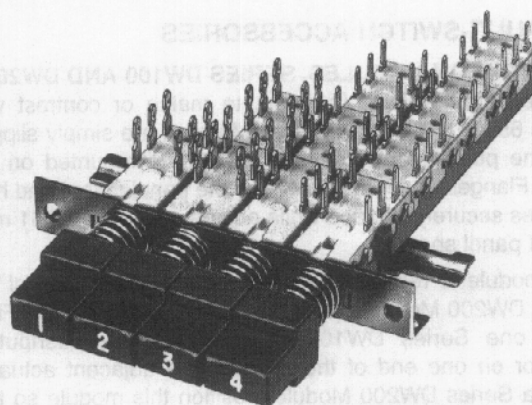
\* Direction indicates side of switch frame solenoid is mounted on (solenoid terminals up).

DIMENSIONS ARE FOR REFERENCE ONLY Inch  
(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:

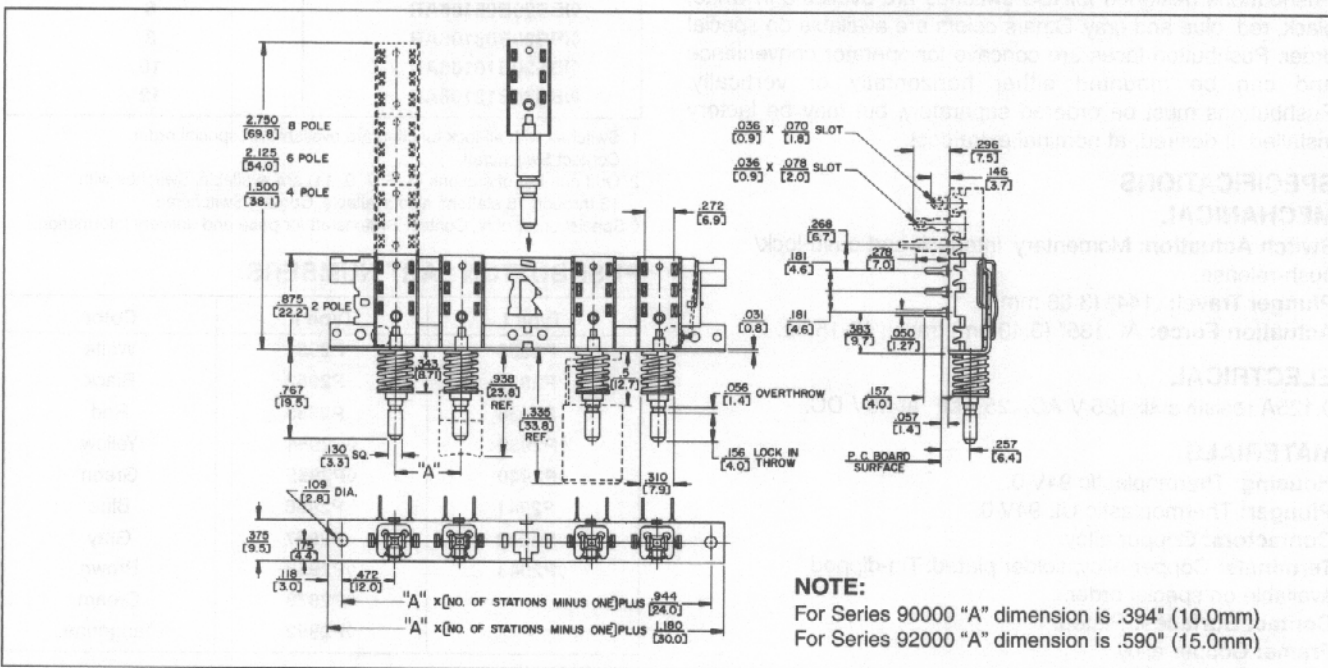
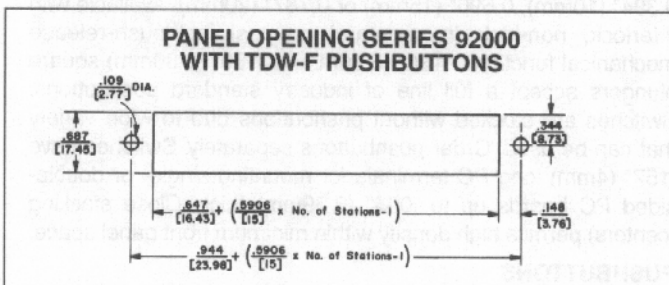
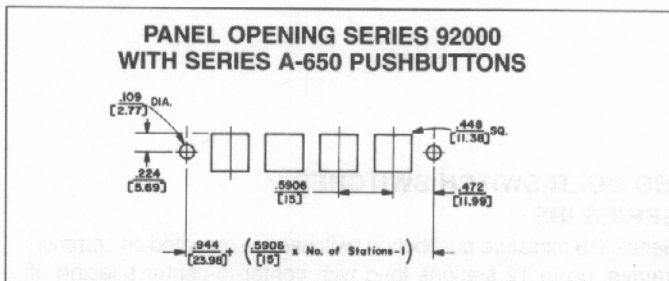
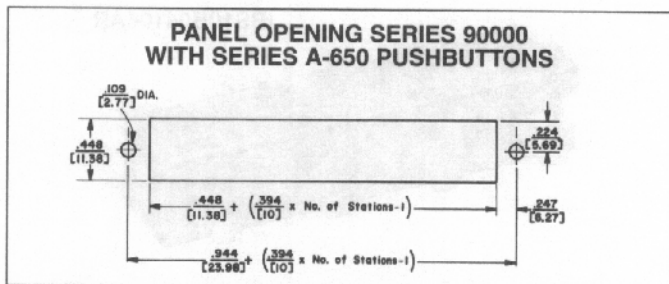
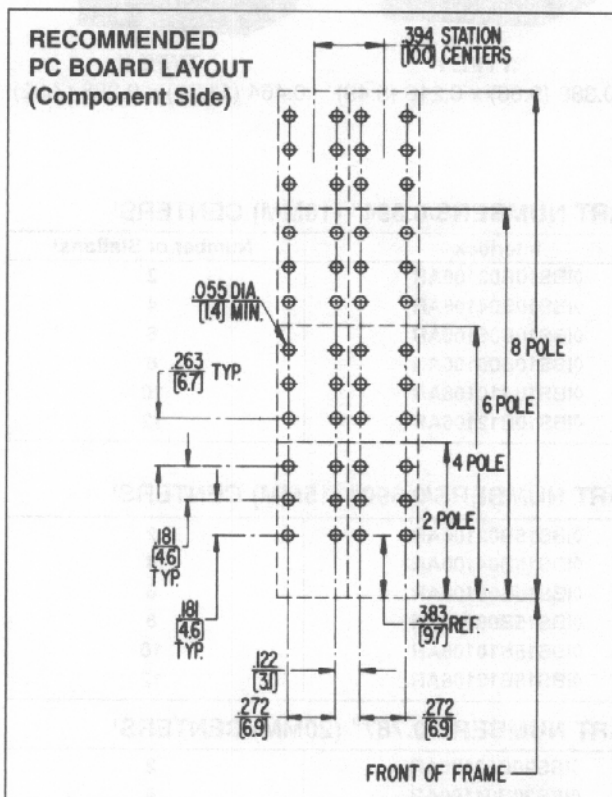
Series 90000 Part Numbers are given in table. To order Series 92000 switches, substitute "2" for "0" for second digit of Part Number. Example; Part Number 92024B06 in the Series 92000 version 0.590" (15mm centers) of Part Number 90024B06 0.394" (10mm centers) interlock with lock-out, 2-C switching per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

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



MULTIPLE-STATION SWITCHES (continued)

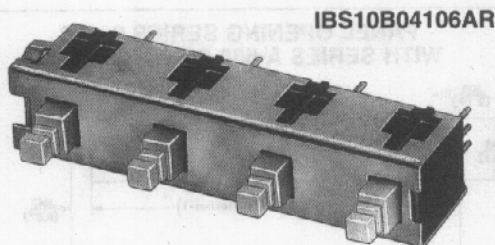
TINI® DW MULTI-SWITCH  
SERIES 90000 and 92000



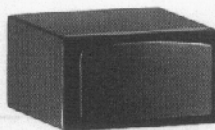
**NOTE:**  
For Series 90000 "A" dimension is .394" (10.0mm)  
For Series 92000 "A" dimension is .590" (15.0mm)

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

## MULTIPLE-STATION SWITCHES (continued)

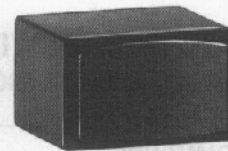


IBS10B04106AR



TYPE I

0.388 (9.86) x 0.216 (5.49)



TYPE II

0.464 (11.79) x 0.288 (7.32)

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.

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

- 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.

## 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.

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



## MULTIPLE-STATION SWITCHES (continued)

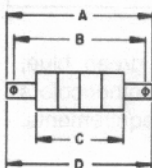
IBS MULTI-SWITCH SWITCHES  
SERIES IBS

## IBS PART NUMBERING CODE

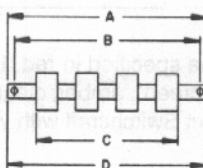
IBS	XX	X	XX	X	XX'	X	R
	CENTERS	FRAME STYLE	STATIONS	MECHANICAL FUNCTION	CIRCUITS	TERMINAL LENGTH	
	0.394" (10mm)	A - Mounting Ears	01 - 12	1 - Interlock	01 - 1A	A - 0.157"	
	0.590" (15mm)	B - No Mounting Ears		2 - Non-Lock	02 - 1B	(4mm)	
	0.787" (20mm)				03 - 1C		
					04 - 2A		
					05 - 2B		
				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

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

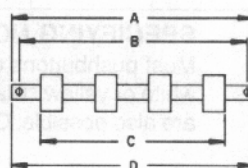
## DIMENSIONS



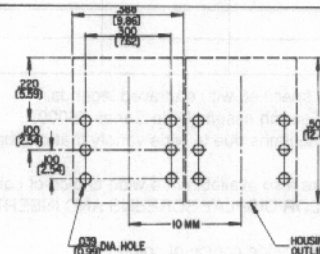
0.394" (10mm)



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 (58.56)	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

Inch  
(mm)

### MULTIPLE-STATION SWITCHES (continued)

## MULTI-SWITCH PUSHBUTTONS

[illegible]

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

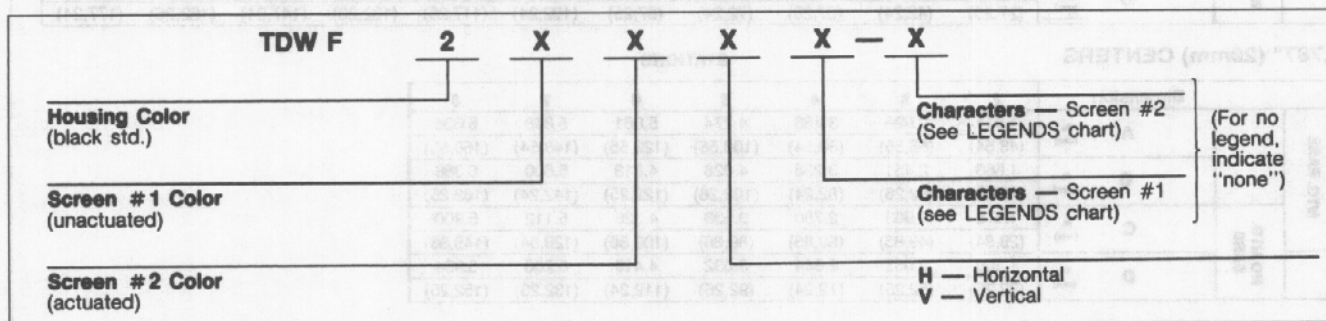
Unique internal "flip-flop" mechanism permits button face to change colors without electrical energy, lamps or wiring. When pushbutton is operated, highly reflective panels inside housing change position and use ambient light to give a bright illuminated effect. Black pushbuttons are .59" (15mm) high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

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

## TDW-F "FLIP-FLOP" PUSHBUTTON PART NUMBERING



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



## 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	.75
Y28248◇	11	Black	Chartreuse		
Y51248◇	11	White	Orange-Red	.75	.625
Z21248◇	12	Black	Orange-Red		
Z28248◇	12	Black	Chartreuse	.75	(19.05)
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	1	Red	.594 (15.09)	.974 (24.7)
◇40002		Black		
◇40003		Green		
◇40004		Blue		
40005		White		
◇40008		Yellow		
40012		Clear		
◇40901	2	Red	1.219 (30.96)	.719 (18.26)
◇40902		Black		
◇40903		Green		
◇40904		Blue		
◇40905		White		
◇40908		Yellow		
◇40912		Clear		
A591	4	Red	.594 (15.09)	.594 (15.09)
A592		Black		
◇A593		Green		
◇A594		Blue		
A595		White		
◇A596		Brown		
◇A598		Yellow		
◇E591	1	Red	1.234 (31.34)	.594 (15.09)
◇E592		Black		
◇E594		Blue		
◇E595		White		
◇E596		Brown		
◇E598		Yellow		

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

DIMENSIONS ARE FOR REFERENCE ONLY Inch  
(mm)

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