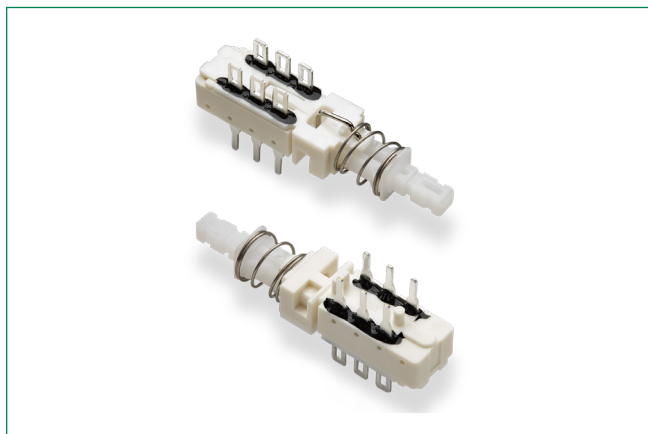


F Series

Pushbutton Switches



Agency Approvals

Agency	Agency File Number
US	E42363

Notes:

Only for contact arrangement 2U, 4U or 6U. Evaluated for 125Vac/0.4A. See UL Recognition for more details.

Specifications

Switching Power	F module max. AC/DC: Silver: 50 VA/15W, Gold: 1 VA/300 mW.
Switching Voltage	F module max. AC/DC: Silver: 125/30V, Gold: 50/30 V.
Switching Current	F module max. AC/DC: Silver: 0.5A/0.5A, Gold: 0.04A/0.01A.
Carrying Current	Max at $\Delta u = 20^{\circ}\text{C}$: Silver: < 2A, Gold: < 0.5A.
Dielectric Strength	(50 Hz, 1 min.): Chassis/contact: $\geq 1500\text{V}$ Between contacts: $\geq 1500\text{V}$.
Operating Life	"OA/EE" (24V/200mA): $> 10^5$ operations "GR": $> 3.5 \times 10^4$ operations.
Contact Resistance	Initial: Typical $\leq 10\text{ m}\Omega$, max. 20 m Ω After operating life: $\leq 100\text{ m}\Omega$
Insulation Resistance	$\geq 10^9\ \Omega$ between open contacts, $\geq 10^9\ \Omega$ between chassis and contacts.
Capacitance	(at $f = 10\text{ kHz}$): $\leq 0.7\text{ pF}$ between 2 contacts.
Total Travel/ Latching Travel	4.7mm/3.3mm (0.185 inch/0.130 inch). All models and options are RoHS compliant and compatible.
Typical F Operating Force	2U: 6.5N (650 grams); 4U: 6.5N (650 grams); 6U: 7.5N (750 grams); 8U: 9.0N (900 grams); 10U: 9.0N (900 grams).
European Typical SF Operating Force	2U: $3.5\text{N} \pm 0.5\text{N}$ (350 grams ± 100 grams); 4U: $5\text{N} \pm 1\text{N}$ (500 grams ± 100 grams); 6U: $6.5\text{N} \pm 1\text{N}$ (650 grams ± 100 grams); 8U: $9.0\text{N} \pm 1\text{N}$ (900 grams ± 100 grams).
Operating Temperature Range	-40°C to 70°C

Description

Innovative digital equipment and medical equipment interfaces utilize F series pushbutton switches because the variety of possible mounting and switch ganging configurations that can fit almost any design. F series switches are RoHS compliant, have various contact terminals and are engineered with up to 10 poles per module.

Features & Benefits

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

Applications

- Audio selection
- Digital equipment interface
- Medical equipment interface

Materials

Housing	Polycarbonate UL 94 V-0 or polyester UL 94 V-0.
Actuator	Polyester UL 94 V-0.
Movable Contacts	Bimetal brass, silver plated, gold plate over nickel.
Stationary Contacts & Terminals	Brass, silver plated, gold plated.
Terminal Board	Polyester UL 94 V-0.
Return Spring	Music wire
Terminal Seal	RTV Adhesive sealant.
Chassis	Steel
Lockout Pin	
Blockers	

Notes:

All models and options are RoHS compliant and compatible. Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

F Series

Pushbutton Switches

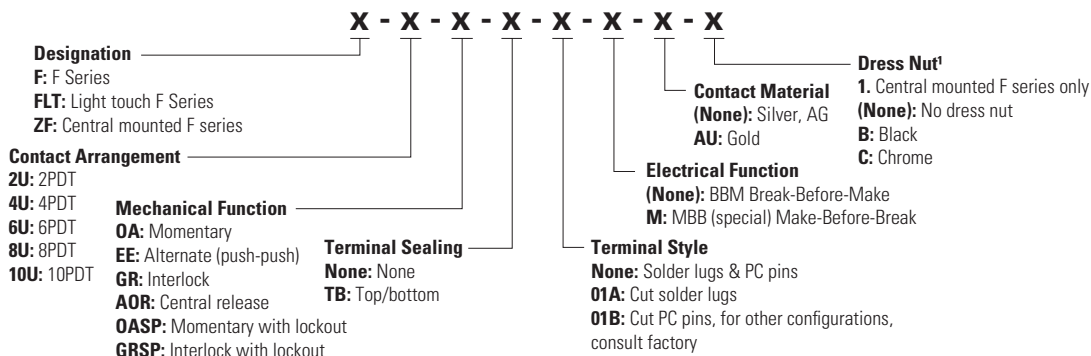


Ordering Number

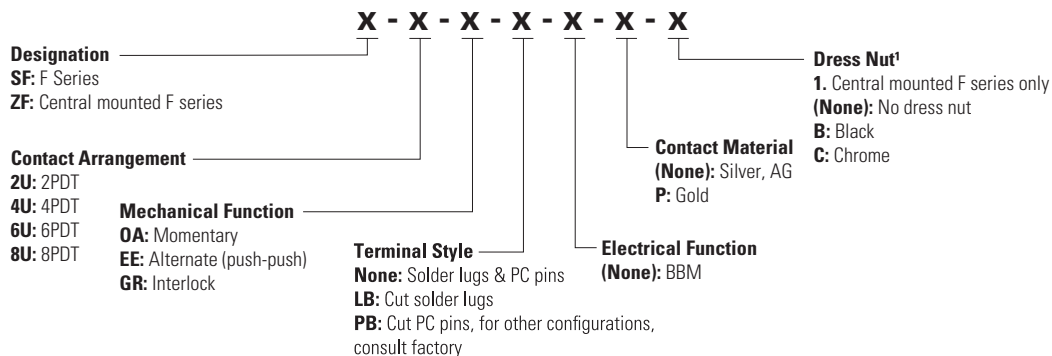
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

If requesting only a switch, select either a North American or European switch as noted below. Chassis and buttons are sold separately. If multiple stations are selected, we will assume all switches are the same unless noted otherwise.

North American Order Code - Switch Only



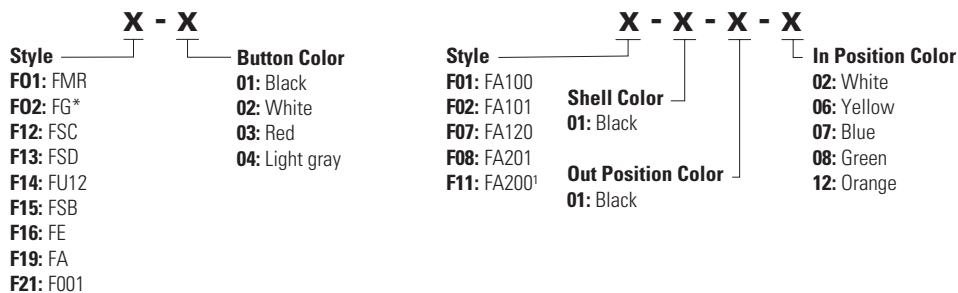
European Order Code - Switch Only



Notes:

Minimum order quantities apply.

Order Code - Buttons



Notes:

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

Button Removal

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

F Series

Pushbutton Switches



Order Code - Chassis

To order a switch with chassis, create the switch part number listed above and add the Chassis part number configurator information at the end of the part number. We do not guarantee or recommend interlocking beyond 10 stations.

Cx - x - x

No. of Stations

01 thru 23: Comes with standard 0.094 (2,4mm) mounting holes. Single station chassis available with special mounting configurations, consult factory.

Special Acknowledgements:

See note

Spacing between Stations

00: Single station

10: 10mm

12.5: 12.5mm

15: 15mm

17.5: 17.5mm

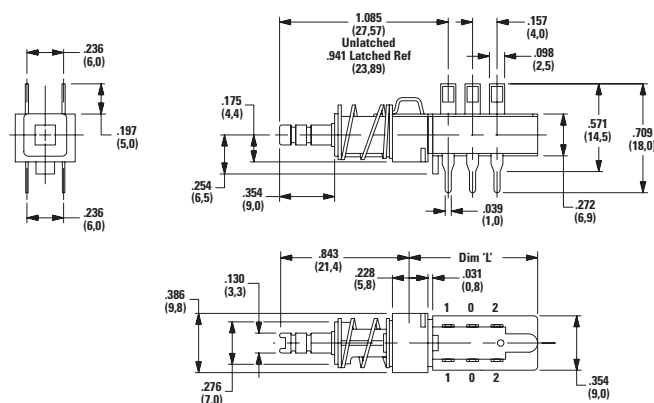
20: 20mm

Notes:

Minimum order quantities apply.

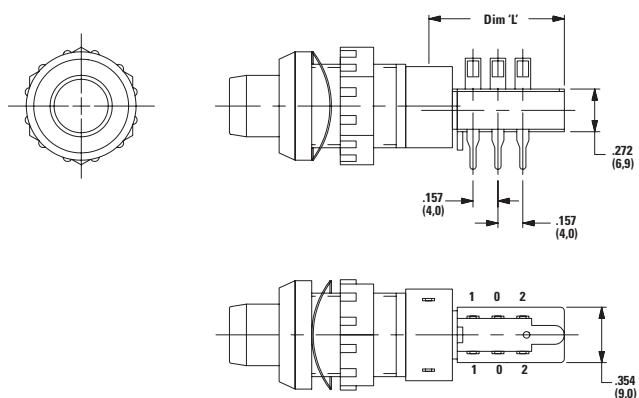
Switches with Standard Buttons

F2UEE



Contact Arrangement	Length DIM 'L'
2U	0.827 (21.00)
4U	1.300 (33.00)
6U	1.770 (45.00)
8U	2.240 (57.00)
10U	2.720 (69.00)

ZF2UEEBF11010108



Contact Arrangement	Length DIM 'L'
2U	0.827 (21.00)
4U	1.300 (33.00)
6U	1.770 (45.00)
8U	2.240 (57.00)
10U	2.720 (69.00)

Designation

Designation, North America

F: F Series

FLT: Light touch F series

ZF: Central mounted F series

Designation, Europe

SF: F Series

ZF: Central mounted F series

F Series

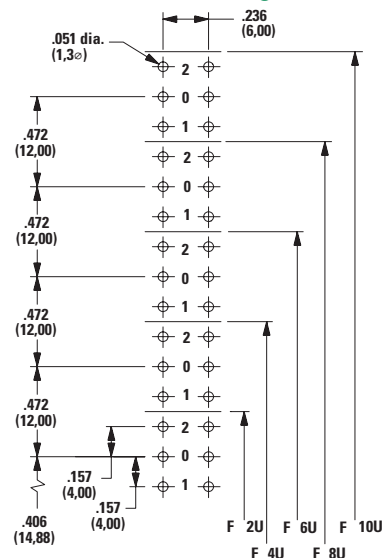
Pushbutton Switches



Contact Arrangement

Option Code	No. of Poles	Schematic
2U	2PDT	
4U	4PDT	
6U	6PDT	
8U	8PDT	
10U	10PDT	

PC Mounting



Mechanical Function

North America

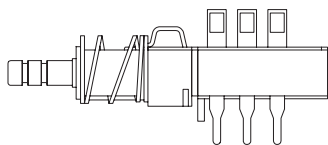
Option Code	Function
OA	Momentary
EE	Alternate (push-push)
GR	Interlock
AOR	Central release
OASP	Momentary with lockout
GRSP	Interlock with lockout

Europe

Option Code	Function
OA	Momentary
EE	Alternate (push-push)
GR	Interlock

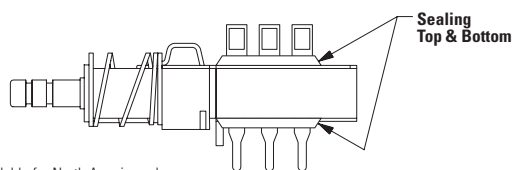
Terminal Sealing

(None) No Seal



F2UEE shown in example above.

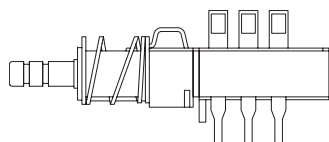
TB Top & Bottom



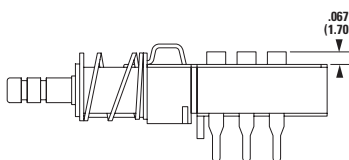
Note: Available for North America only

Terminal Style

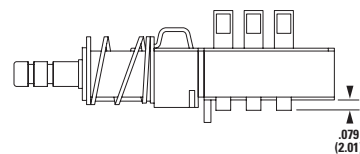
(None) Solder Lugs & PC Pins



01A Cut Solder Lugs (North America) LB Cut Solder Lugs (Europe)



01B Cut PC Pins (North America) PB Cut PC Pins (Europe)



F Series

Pushbutton Switches



Electrical Function

Option Code	Function
(None)	BBM Non-shorting
M	MBB Shorting (North America only)

Contact Material

North America Option Code	Europe Option Code	RoHS Compliant ¹	RoHS Compatible ¹	Material	Rating
(None)	(None)	Yes	Yes	Silver, AG	50 VA/15 W; 125/30 V; 0.5/0.5 A
AU	P	Yes	Yes	Gold	1VA/300mW; 50/30 V; 0.04 A/0.01 A

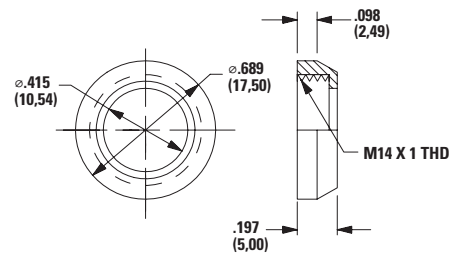
Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

Dress Nut

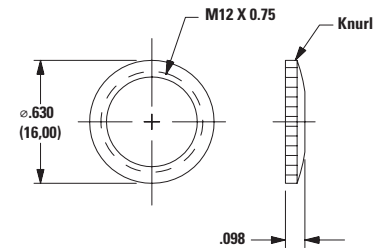
Dimensions inches (mm)

(None) No Dress Nut for
F & F/LT Designations

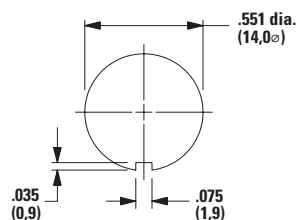
B Black



C Chrome

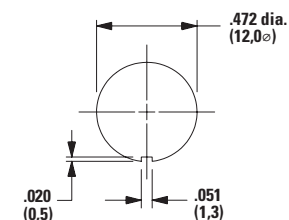


Panel Cutout



Note: Available with ZF designation and FA200 buttons.

Panel Cutout

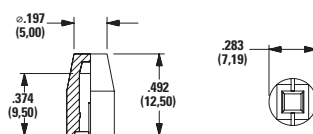


Note: Available with ZF designation and FG buttons.

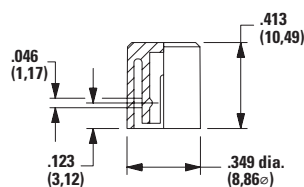
Solid Button Style

Dimensions inches (mm)

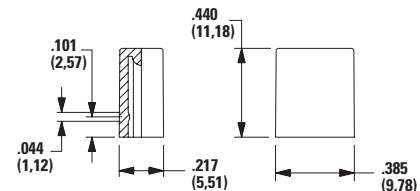
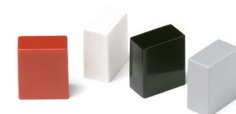
F01 FMR



F02 FG



F12 FSC



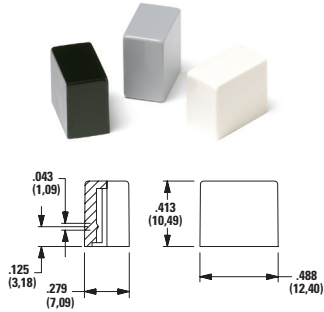
F Series

Pushbutton Switches

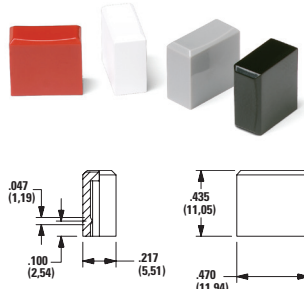


Dimensions inches (mm)

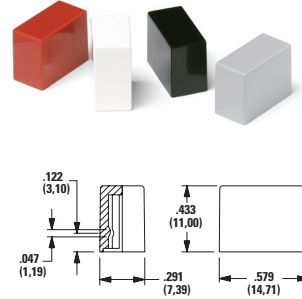
F13 FSD



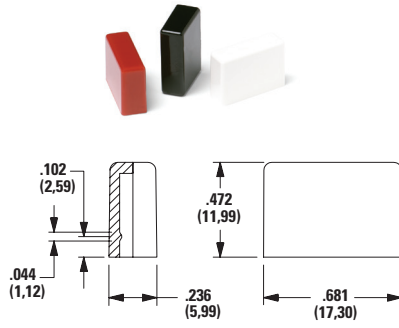
F14 FU12



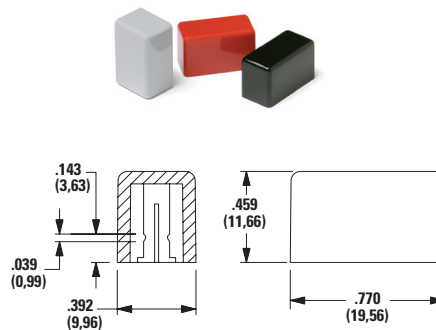
F15 FSB



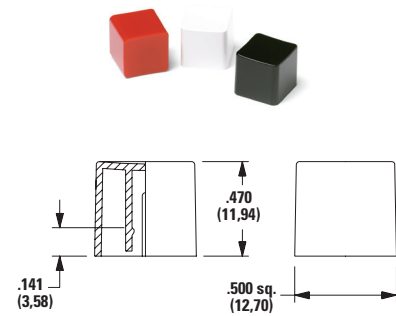
F16 FE



F19 FA



F21 F001

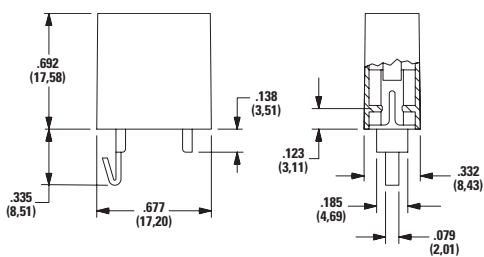


Option Code	Color
01	Black
02	White
03	Red
04	LT. Gray

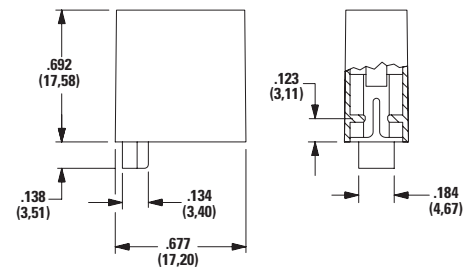
Mechanical Button Style and Color

Dimensions inches (mm)

F01 FA100



F02 FA101

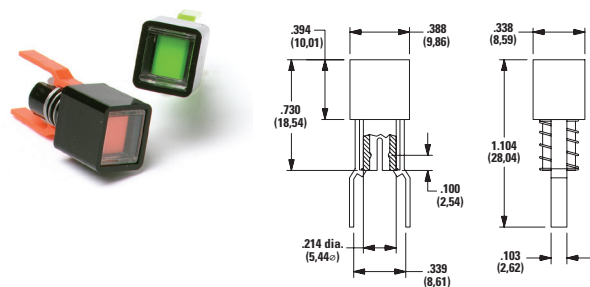
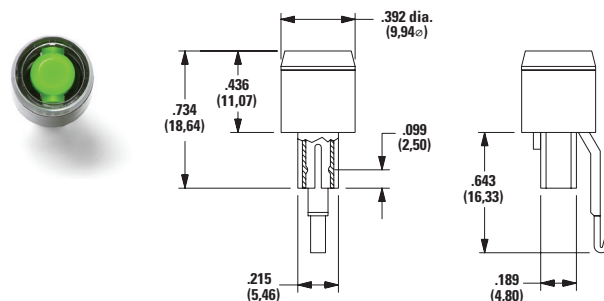
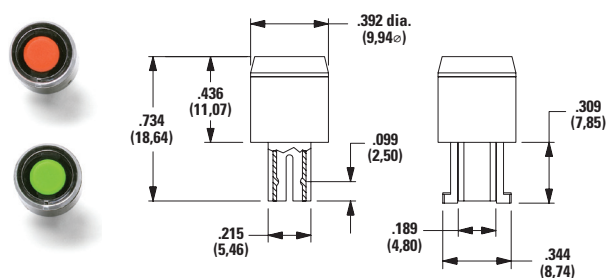


F Series

Pushbutton Switches



Dimensions inches (mm)

F07 FA120

F08 FA201

F11 FA200

Shell Color 01 Black

Out Position Color 01 Black

In Position Color

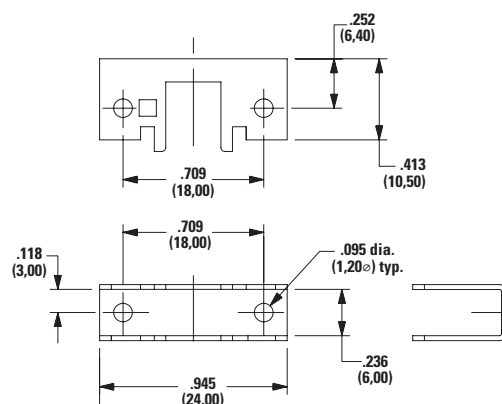
Option Code	Color
02	White
06	Yellow
07	Blue
08	Green
12	Orange

Number of Stations C00 Thru C10

Notes: Comes with standard 0.094 (2.44mm) mounting, single station chassis available with mounting configurations, consult factory.

Chassis

Spacing 00 Single Station Dimensions inches (mm)



F Series

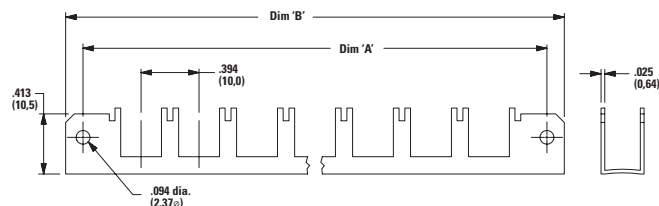
Pushbutton Switches



Dimensions inches (mm)

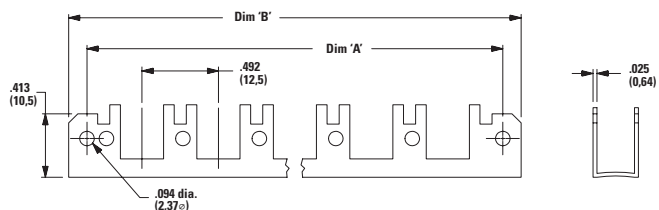
10 10mm

No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.182 (30.02)	1.418 (36.02)	0.005
3	1.575 (40.01)	1.811 (46.00)	0.010
4	1.969 (50.01)	2.205 (56.01)	0.010
5	2.363 (60.02)	2.599 (66.01)	0.010
6	2.757 (70.03)	2.993 (76.02)	0.015
7	3.150 (80.01)	3.386 (86.00)	0.015
8	3.544 (90.02)	3.780 (96.01)	0.015
9	3.938 (100.03)	4.174 (106.02)	0.015
10	4.331 (110.01)	4.567 (116.00)	0.015



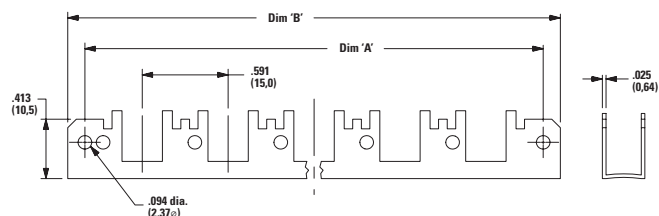
12.5 12.5mm

No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.200 (30.48)	1.436 (36.47)	0.005
3	1.692 (42.98)	1.928 (48.97)	0.010
4	2.184 (55.47)	2.420 (61.47)	0.010
5	2.676 (67.97)	2.912 (73.96)	0.010
6	3.169 (80.49)	3.405 (86.49)	0.015
7	3.661 (92.99)	3.897 (98.98)	0.015
8	4.153 (105.49)	4.389 (111.48)	0.015
9	4.645 (117.98)	4.881 (123.98)	0.015
10	5.137 (130.48)	5.373 (136.47)	0.015



15 15mm

No. Of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.374 (34.90)	1.615 (41.02)	0.005
3	1.969 (50.01)	2.205 (56.01)	0.010
4	2.560 (65.02)	2.796 (71.02)	0.010
5	3.150 (80.01)	3.386 (86.00)	0.010
6	3.741 (95.02)	3.977 (101.02)	0.015
7	4.332 (110.03)	4.568 (116.03)	0.015
8	4.922 (125.02)	5.158 (131.01)	0.015
9	5.513 (140.03)	5.749 (146.02)	0.015
10	6.103 (155.02)	6.339 (161.01)	0.015



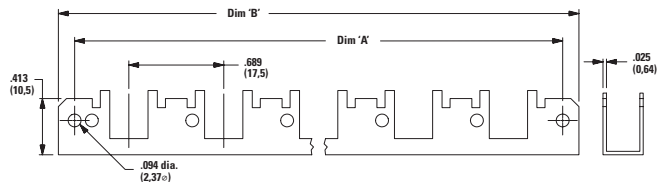
F Series

Pushbutton Switches



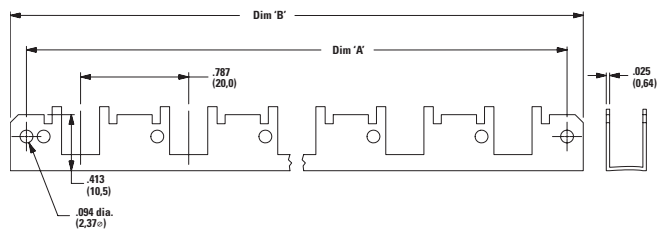
17.5 17.5mm

No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.477 (37.52)	1.713 (43.51)	0.005
3	2.166 (55.02)	2.402 (61.01)	0.010
4	2.855 (75.52)	3.091 (78.51)	0.010
5	3.544 (90.02)	3.780 (96.01)	0.010
6	4.233 (107.52)	4.469 (113.51)	0.015
7	4.922 (125.02)	5.158 (131.01)	0.015
8	5.611 (142.52)	5.847 (148.51)	0.015
9	6.300 (160.02)	6.536 (166.01)	0.015
10	6.989 (177.52)	7.225 (183.52)	0.015



20 20mm

No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.575 (40.01)	1.811 (46.00)	0.005
3	2.363 (60.02)	2.599 (66.01)	0.010
4	3.150 (80.01)	3.386 (86.00)	0.010
5	3.938 (100.03)	4.174 (106.02)	0.010
6	4.725 (120.02)	4.961 (126.01)	0.015
7	5.512 (140.00)	5.748 (146.00)	0.015
8	6.300 (160.02)	6.536 (166.01)	0.015
9	7.087 (180.01)	7.323 (186.00)	0.015
10	7.875 (200.03)	8.111 (206.02)	0.015



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