#### Features/Benefits

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

#### Typical Applications

- Audio selection
- Digital equipment interface
- Medical equipment interface





#### **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 d87u = 20C: Silver: < 2A, Gold: <0.5A.

DIELECTRIC STRENGTH (50 Hz, 1 min.): Chassis/contact: ^1500V Between contacts: ^1500V.

OPERATING LIFE "OA/EE" (24V/200mA): >10<sup>5</sup> operations "GR": >3.5 x 104 operations.

CONTACT RESISTANCE: Initial: Typical %10 m $\Omega$ , max. 20 m $\Omega$ After operating life:  $\%100 \text{ m}\Omega$ 

INSULATION RESISTANCE: ^10<sup>9</sup> Ω between open contacts.  $^{109}$   $\Omega$  between chassis and contacts.

CAPACITANCE (at f = 10 kHz): %0.7 pF between 2 contacts.

TOTAL TRAVEL/LATCHING TRAVEL: 4.7mm/3.3mm (.185 inch/ .130 inch).

All models and options are RoHS compliant and compatible.

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

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

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

EUROPEAN TYPICAL SF OPERATING FORCE:

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

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

#### **Materials**

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

ACTUATOR: Polyester UL 94V-0.

MOVABLE CONTACTS: Bimetal brass, silver plated, gold plate

STATIONARY CONTACTS & TERMINALS: Brass, silver plated, gold plated.

TERMINAL BOARD: Polyester UL 94V-0.

RETURN SPRING: Music wire.

TERMINAL SEAL: RTV adhesive sealant.

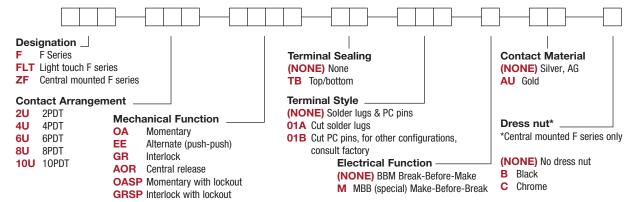
CHASSIS: Steel. LOCKOUT PIN: Steel. BLOCKERS: Steel.

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

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-88 thru A-95. For additional options not shown in catalog, consult Customer Service Center.

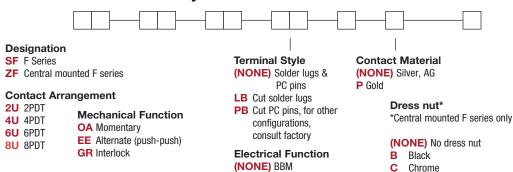
If requesting only a switch, select either a North American or European switch as noted below. Chassis and buttons are sold separately. If multiple stations are selected, we will assume all switches are the same unless noted otherwise.

## North American Order Code - Switch Only



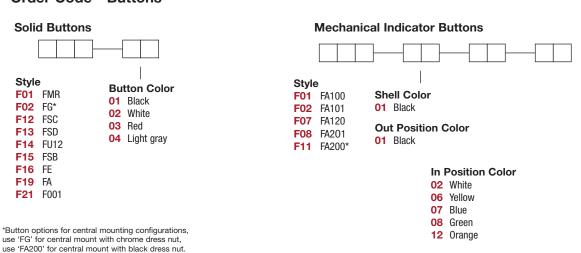


#### **European Order Code - Switch Only**



<sup>\*</sup>Minimum order quantities apply.

#### Order Code - Buttons



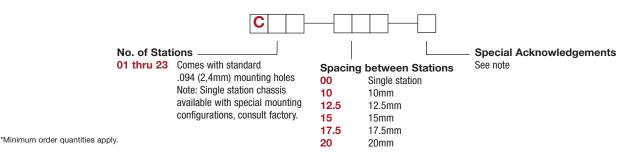
#### **BUTTON REMOVAL**

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

#### Order Code - Chassis

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

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

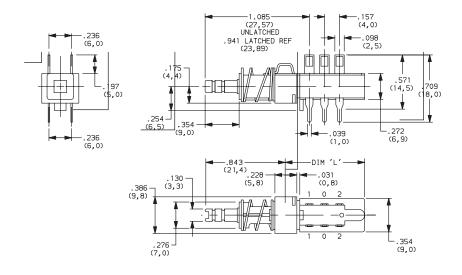




# **SWITCHES WITH STANDARD OPTIONS**

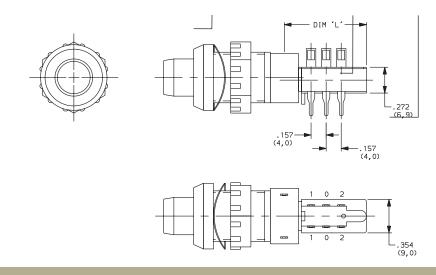
#### **F2UEE**

| CONTACT<br>ARRANGEMENT | LENGTH<br>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<br>ARRANGEMENT | LENGTH<br>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 Series

FLT Light touch F series

Central mounted F series

Designation, Europe

SF F Series

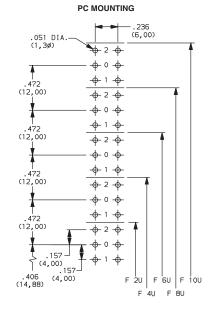
**ZF** Central mounted F series



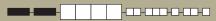


## CONTACT ARRANGEMENT -----

| OPTION CODE | NO. OF POLES | SCHEMATIC                                |
|-------------|--------------|--|
| 2U          | 2PDT         | 1 • 0 • 0 • 0                            |
| 4U          | 4PDT         | 2X 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| 6U          | 6PDT         | 3X 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| 8U          | 8PDT         | 4X 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| 10U         | 10PDT        | 5X 1 0 0 0 0                             |



# MECHANICAL FUNCTION -



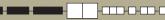
#### **North America**

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

#### Europe

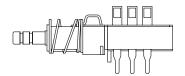
| OPTION CODE | FUNCTION              |
|-------------|-----------------------|
| OA          | Momentary             |
| EE          | Alternate (push-push) |
| GR          | Interlock             |

## TERMINAL SEALING

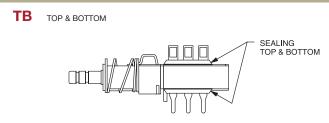


(NONE)

NO SEAL



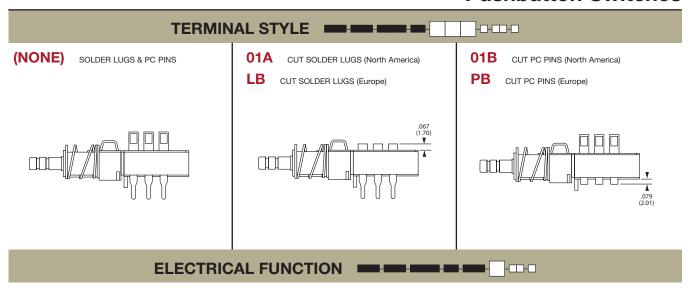
F2UEE shown in example above.



NOTE: Available for North America only







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

## CONTACT MATERIAL

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

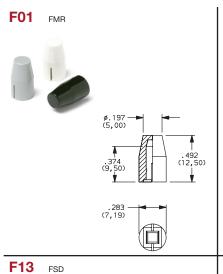
<sup>\*</sup> Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

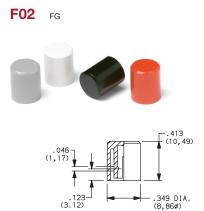
#### **DRESS NUT** (NONE) NO DRESS NUT FOR F & F/LT BLACK CHROME M12 X 0.75 DESIGNATIONS -KNURL .098 (2,49) -ø.689 (17,50) ø.415<sup>-</sup> (10,54) M14 X 1 THD .098 .197 (5,00) PANEL CUTOUT PANEL CUTOUT .472 DIA. (12,0ø) .551 DIA. (14,0ø) .020 — (0,5) .035 (0,9) NOTE: Available with ZF designation and FG button. NOTE: Available with ZF designation and FA200 buttons. Third Angle Projection



# **SOLID BUTTON**

#### **STYLE**

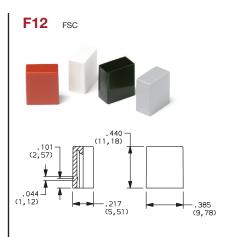


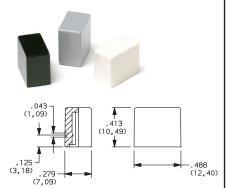


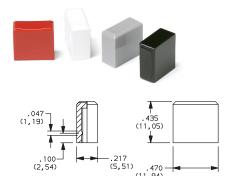
F14

**F19** FA

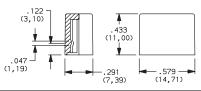
FU12



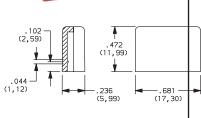




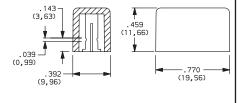












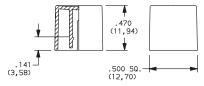
| OPTION CODE | COLOR    |  |
|-------------|----------|--|
| 01          | BLACK    |  |
| 02          | WHITE    |  |
| 03          | RED      |  |
| 04          | LT. GRAY |  |



F15

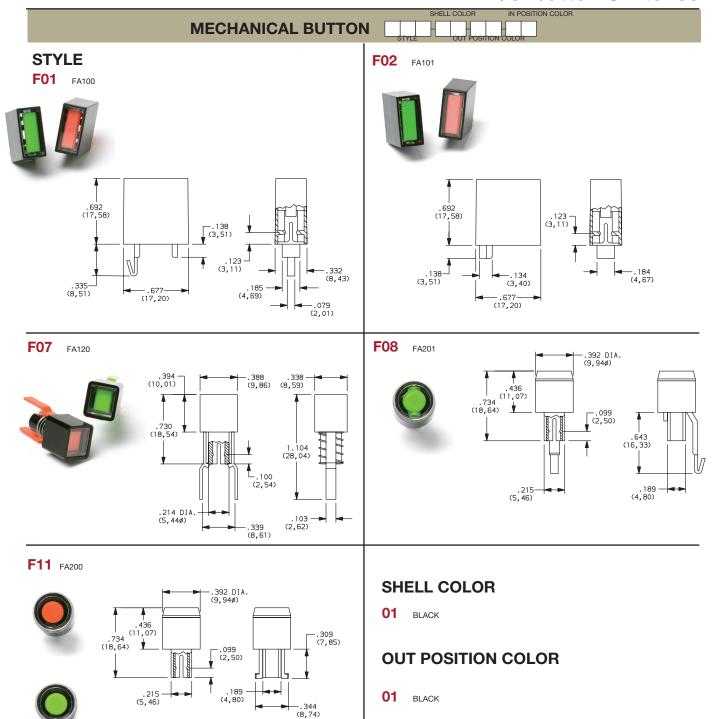
FSB







**F16** FE



## IN POSITION COLOR

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



CHASSIS

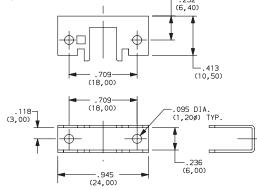
## **NUMBER OF STATIONS**

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

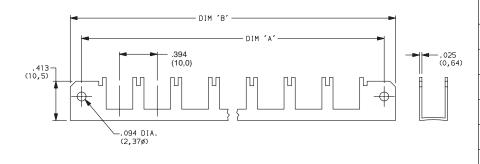
NOTE: Single station chassis available with mounting configurations, consult factory.

## **SPACING**

00 SINGLE STATION

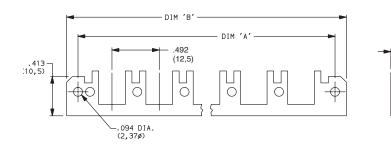


10 10mm



| No. of Stations | Dim. 'A'          | Dim. 'B'          | Tolerance |
|-----------------|-------------------|-------------------|-----------|
| 2               | 1.182<br>(30,02)  | 1.418<br>(36,02)  | 0.005     |
| 3               | 1.575<br>(40,01)  | 1.811<br>(46,00)  | 0.010     |
| 4               | 1.969<br>(50,01)  | 2.205<br>(56,01)  | 0.010     |
| 5               | 2.363<br>(60,02)  | 2.599<br>(66,01)  | 0.010     |
| 6               | 2.757<br>(70,03)  | 2.993<br>(76,02)  | 0.015     |
| 7               | 3.150<br>(80,01)  | 3.386<br>(86,00)  | 0.015     |
| 8               | 3.544<br>(90,02)  | 3.780<br>(96,01)  | 0.015     |
| 9               | 3.938<br>(100,03) | 4.174<br>(106,02) | 0.015     |
| 10              | 4.331<br>(110,01) | 4.567<br>(116,00) | 0.015     |

12.5 12.5mm



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

.025 (0,64)



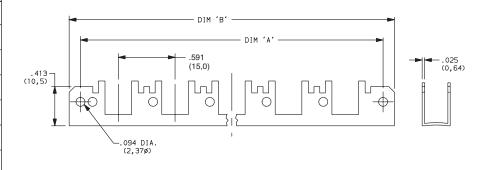


# **CHASSIS**

# **SPACING**

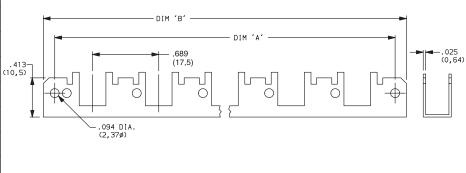
#### 15 15mm

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



#### 17.5 17.5mm

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



#### 20 20mm

| No. of Stations | Dim. 'A'          | Dim. 'B'          | Tolerance |
|-----------------|-------------------|-------------------|-----------|
| 2               | 1.575<br>(40,01)  | 1.811<br>(46,00)  | 0.005     |
| 3               | 2.363<br>(60,02)  | 2.599<br>(66,01)  | 0.010     |
| 4               | 3.150<br>(80,01)  | 3.386<br>(86,00)  | 0.010     |
| 5               | 3.938<br>(100,03) | 4.174<br>(106,02) | 0.010     |
| 6               | 4.725<br>(120,02) | 4.961<br>(126,01) | 0.015     |
| 7               | 5.512<br>(140,00) | 5.748<br>(146,00) | 0.015     |
| 8               | 6.300<br>(160,02) | 6.536<br>(166,01) | 0.015     |
| 9               | 7.087<br>(180,01) | 7.323<br>(186,00) | 0.015     |
| 10              | 7.875<br>(200,03) | 8.111<br>(206,02) | 0.015     |

