

# C&K F Series Pushbutton Switches



A

Pushbutton

## Features/Benefits

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

## 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  $\theta_a = 20^\circ\text{C}$ : 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.  $20\text{ m}\Omega$  After operating life:  $\leq 100\text{ m}\Omega$

INSULATION RESISTANCE:  $\geq 10^9\text{ }\Omega$  between open contacts,  $\geq 10^9\text{ }\Omega$  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 (.185 inch/.130 inch)

**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:  $3.5\text{N} \pm 0.5\text{N}$  (350 grams  $\pm 100$  grams); 4U:  $5\text{N} \pm 1\text{N}$  (500 grams  $\pm 100$  grams); 6U:  $6.5\text{N} \pm 1\text{N}$  (650 grams  $\pm 100$  grams); 8U:  $9.0\text{N} \pm 1\text{N}$  (900 grams  $\pm 100$  grams).

## Materials

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

ACTUATOR: Polyester UL 94V-0.

MOVABLE CONTACTS: Bimetal brass, silver plated, gold plate over nickel.

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

TERMINAL BOARD: Polyester UL 94V-0.

RETURN SPRING: Music wire.

TERMINAL SEAL: RTV adhesive sealant.

CHASSIS: Steel.

LOCKOUT PIN: Steel.

BLOCKERS: Steel.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-88 thru A-96. 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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Designation</b></p> <p><b>F</b> (STD.) F Series</p> <p><b>FLT</b> Light touch F series</p> <p><b>ZF</b> Central mounted F series</p> <p><b>Contact Arrangement</b></p> <p><b>2U</b> 2PDT</p> <p><b>4U</b> 4PDT</p> <p><b>6U</b> 6PDT</p> <p><b>8U</b> 8PDT</p> <p><b>10U</b> 10PDT</p> <p><b>Mechanical Function</b></p> <p><b>OA</b> Momentary</p> <p><b>EE</b> Alternate (push-push)</p> <p><b>GR</b> Interlock</p> <p><b>AOR</b> Central release</p> <p><b>OASP</b> Momentary with lockout</p> <p><b>GRSP</b> Interlock with lockout</p> | <p><b>Terminal Sealing</b></p> <p><b>(NONE)</b> (STD.) None</p> <p><b>TB</b> Top/bottom</p> <p><b>Terminal Style</b></p> <p><b>(NONE)</b> (STD.) Solder lugs &amp; PC pins</p> <p><b>01A</b> Cut solder lugs</p> <p><b>01B</b> Cut PC pins, for other configurations, consult factory</p> <p><b>Electrical Function</b></p> <p><b>(NONE)</b> (STD.) BBM</p> <p><b>M</b> MBB (special)</p> | <p><b>Contact Material</b></p> <p><b>(NONE)</b> (STD.) Silver, AG</p> <p><b>AU</b> Gold</p> <p><b>Dress nut*</b></p> <p><b>(NONE)</b> (STD.) No dress nut</p> <p><b>B</b> Black</p> <p><b>C</b> Chrome</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

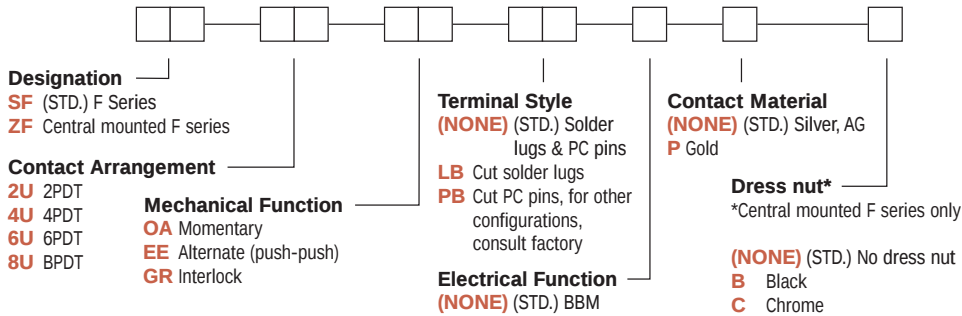
# C&K F Series Pushbutton Switches



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Pushbutton

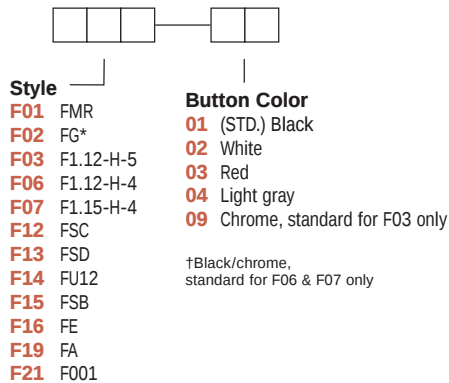
## European Order Code - Switch Only



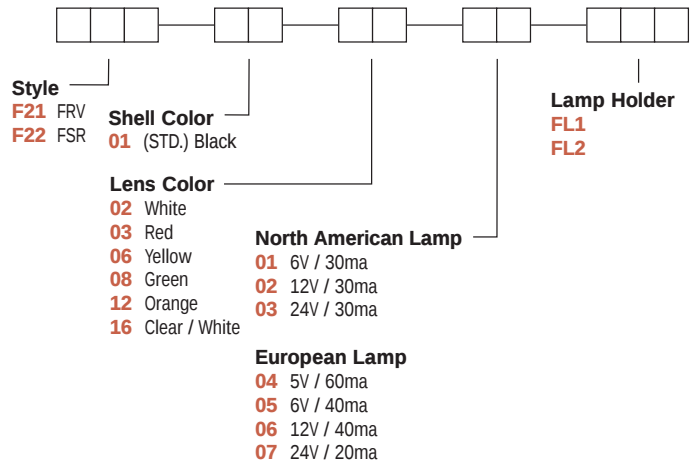
\*Minimum order quantities apply.

## Order Code - Buttons

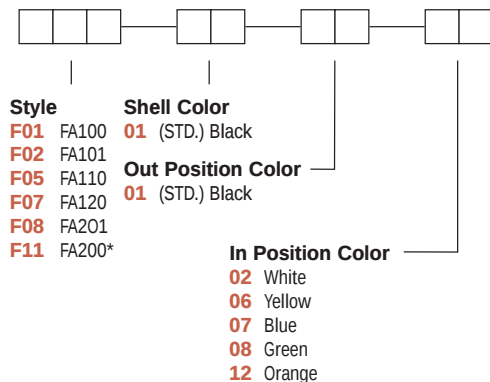
### Solid Buttons



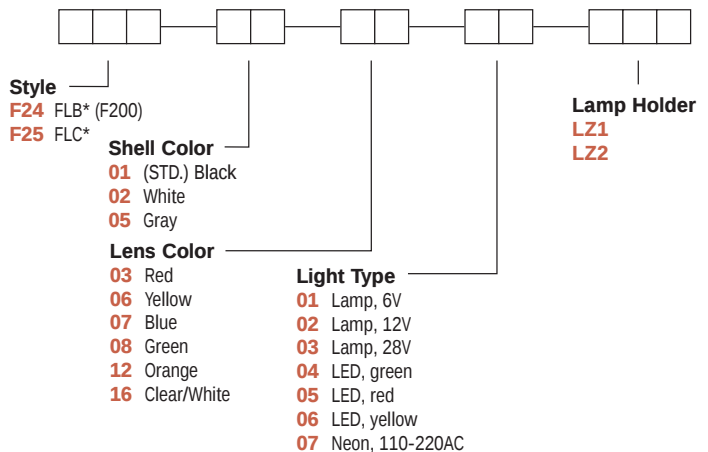
### Illuminated Buttons with Chassis



### Mechanical Indicator Buttons



### Central Mounted Illuminated Buttons



\*Button options for central mounting configurations, use 'FG' for central mount with chrome dress nut, use 'FA200', 'FLB' or 'FLC' 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.

# C&K F Series Pushbutton Switches



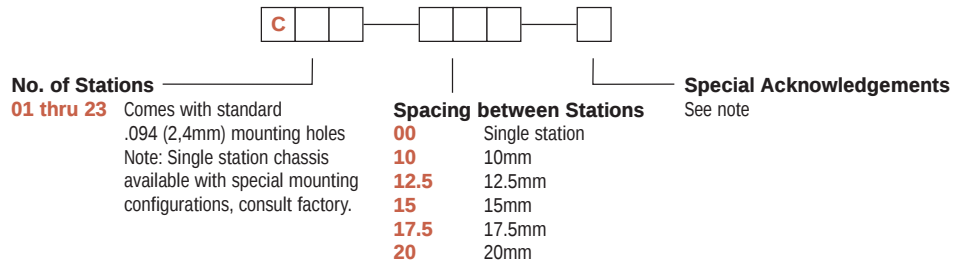
A

Pushbutton

## 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.

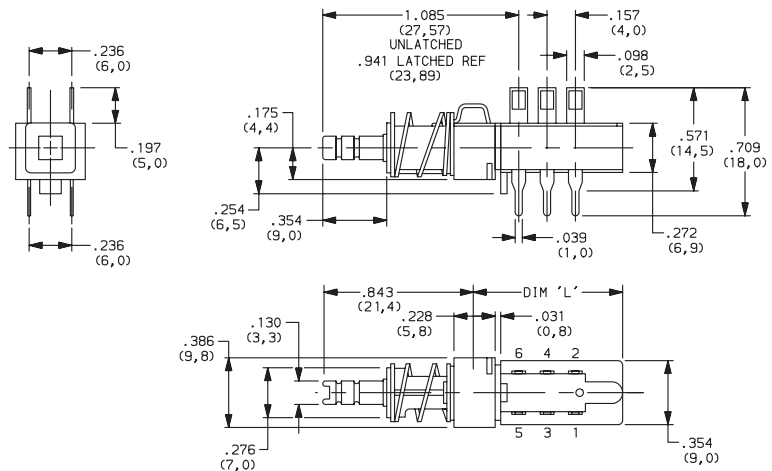


\*Minimum order quantities apply.

## SWITCHES WITH STANDARD OPTIONS

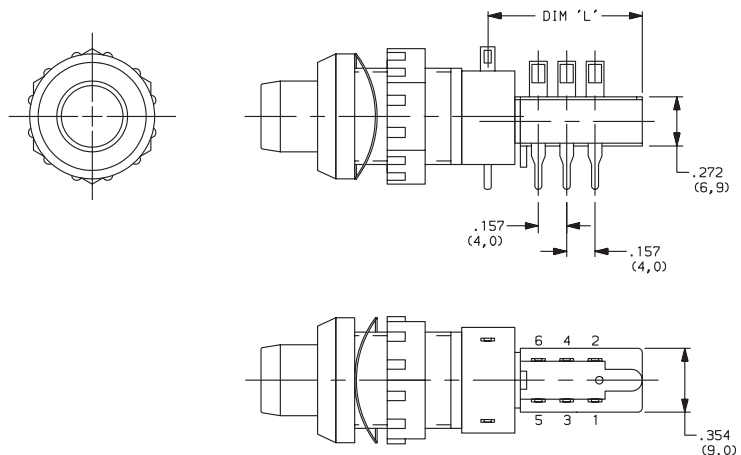
### F2UEE

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



### ZF2UEEBF25010802LZ1

| 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)  |



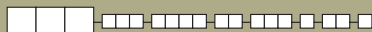
# C&K F Series Pushbutton Switches



A

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## DESIGNATION



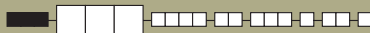
### Designation, North America

**F** (STD.) F Series  
**FLT** Light touch F series  
**ZF** Central mounted F series

### Designation, Europe

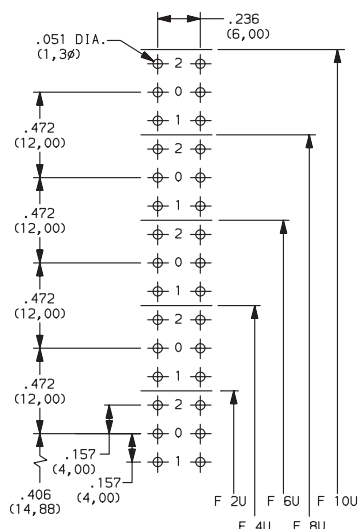
**SF** (STD.) F Series  
**ZF** Central mounted F series

## CONTACT ARRANGEMENT



| OPTION CODE | NO. OF POLES | SCHEMATIC |
|-------------|--------------|-----------|
| <b>2U</b>   | 2PDT         |           |
| <b>4U</b>   | 4PDT         | 2X        |
| <b>6U</b>   | 6PDT         | 3X        |
| <b>8U</b>   | 8PDT         | 4X        |
| <b>10U</b>  | 10PDT        | 5X        |

### PC MOUNTING



## MECHANICAL FUNCTION



### North America

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

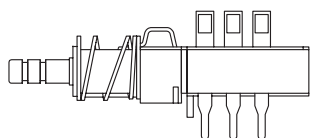
### Europe

| OPTION CODE | FUNCTION              |
|-------------|-----------------------|
| <b>OA</b>   | Momentary             |
| <b>EE</b>   | Alternate (push-push) |
| <b>GR</b>   | Interlock             |

## TERMINAL SEALING

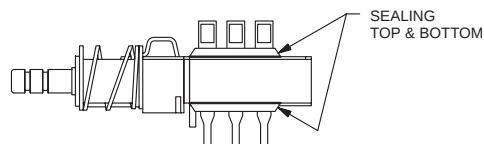


**(NONE)** (STD.) NO SEAL



F2UEE shown in example above.

**TB** TOP & BOTTOM



NOTE: Available for North America only



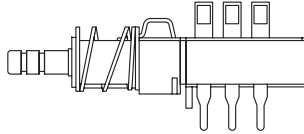
Third Angle  
Projection  
 Dimensions are shown: IN (mm)  
 Dimensions subject to change

# C&K F Series Pushbutton Switches

## TERMINAL STYLE

**(NONE)**

(STD.) SOLDER LUGS & PC PINS

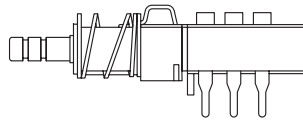


**01A**

CUT SOLDER LUGS (North America)

**LB**

CUT SOLDER LUGS (Europe)

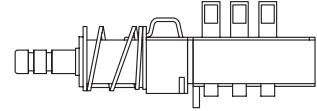


**01B**

CUT PC PINS (North America)

**PB**

CUT PC PINS (Europe)



A

Pushbutton

## ELECTRICAL FUNCTION

| OPTION CODE          | FUNCTION                          |
|----------------------|-----------------------------------|
| <b>(NONE)</b> (STD.) | BBM Non-shorting                  |
| <b>M</b>             | MBB Shorting (North America only) |

## CONTACT MATERIAL

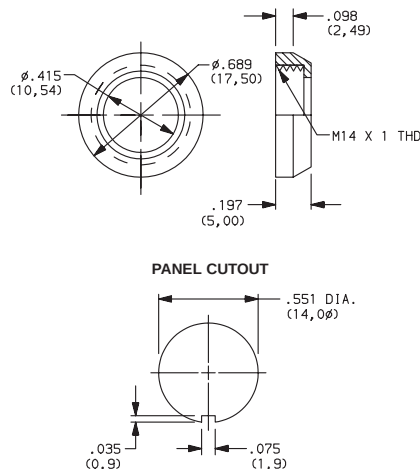
| NORTH AMERICA<br>OPTION CODE | EUROPE<br>OPTION CODE | MATERIAL   | RATING                             |
|------------------------------|-----------------------|------------|------------------------------------|
| <b>(NONE)</b> (STD.)         | <b>(NONE)</b> (STD.)  | Silver, AG | 50 VA/15 W; 125/30 V; 0.5/0.5 A    |
| <b>AU</b>                    | <b>P</b>              | GOLD       | 1 VA/300mW; 50/30 V; 0.04 A/0.01 A |

## DRESS NUT

**(NONE)**

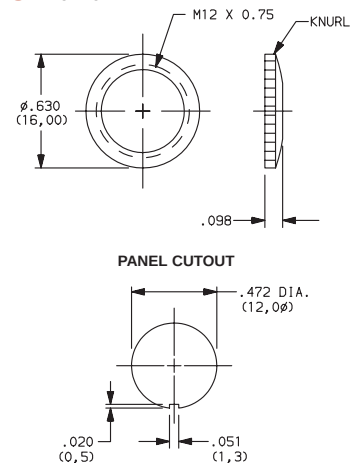
(STD.) NO DRESS NUT  
FOR F & F/LT DESIGNATIONS

**B** BLACK



**NOTE:** Available with ZF designation and FA200, FLB or FLC buttons.

**C** CHROME



**NOTE:** Available with ZF designation and FG button.



Dimensions are shown: IN (mm)  
Dimensions subject to change

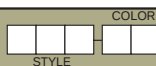
# C&K F Series Pushbutton Switches



A

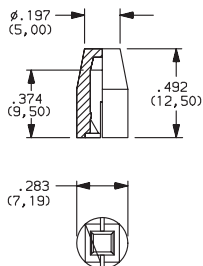
Pushbutton

## SOLID BUTTON

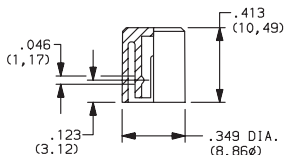


### STYLE

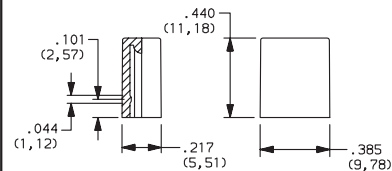
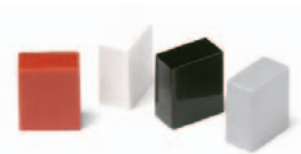
**F01** FMR



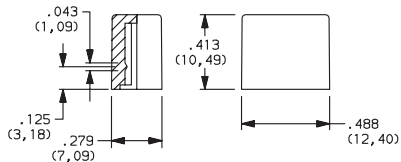
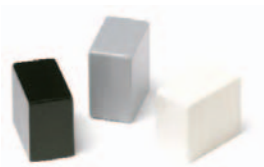
**F02** FG



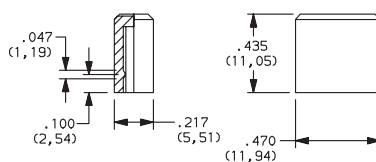
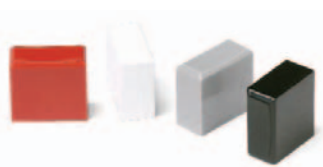
**F12** FSC



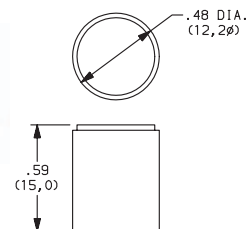
**F13** FSD



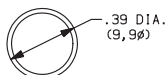
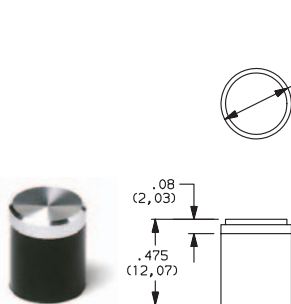
**F14** FU12



**F03** F1.12-H-5



**F06** F1.12-H-4



**F07** F1.15-H-4



| OPTION CODE | COLOR                                         |
|-------------|-----------------------------------------------|
| <b>01</b>   | (STD.) BLACK                                  |
| <b>02</b>   | WHITE                                         |
| <b>03</b>   | RED                                           |
| <b>04</b>   | LT. GRAY                                      |
| <b>09</b>   | BLACK/CHROME<br>(F03, F06 & F07 buttons only) |



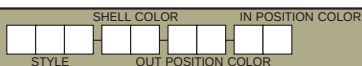
# C&K F Series Pushbutton Switches



A

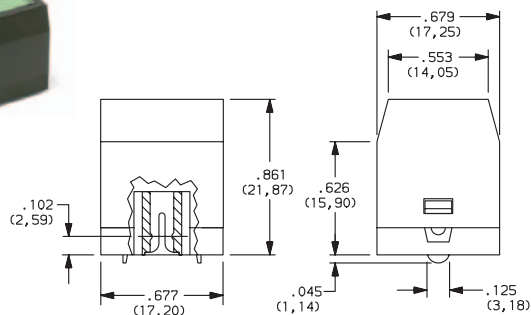
Pushbutton

## MECHANICAL BUTTON

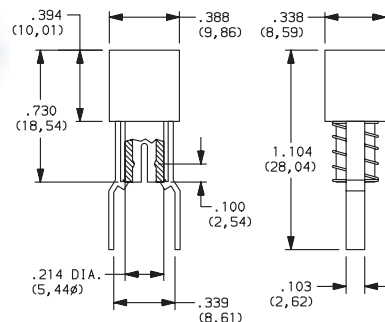


### STYLE

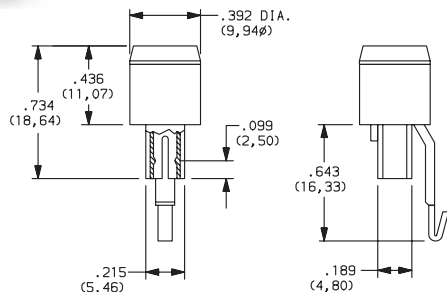
**F05** FA110



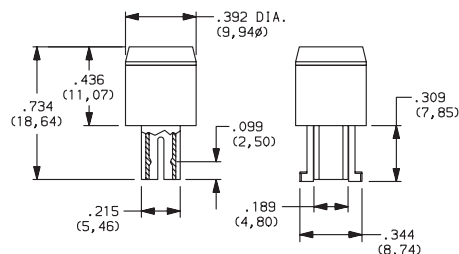
**F07** FA120



**F08** FA201



**F11** FA200



### SHELL COLOR

**01** (STD.) BLACK

### IN POSITION COLOR

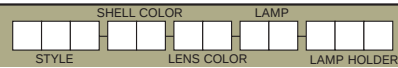
### OUT POSITION COLOR

**01** (STD.) BLACK

| OPTION CODE | COLOR  |
|-------------|--------|
| <b>02</b>   | WHITE  |
| <b>06</b>   | YELLOW |
| <b>07</b>   | BLUE   |
| <b>08</b>   | GREEN  |
| <b>12</b>   | ORANGE |

# C&K F Series Pushbutton Switches

## ILLUMINATED BUTTON WITH CHASSIS

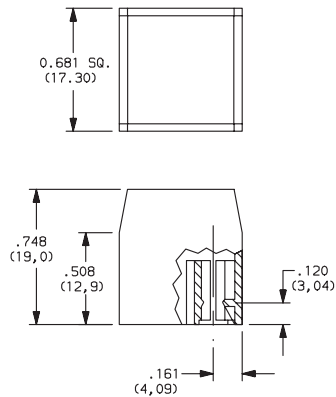


A

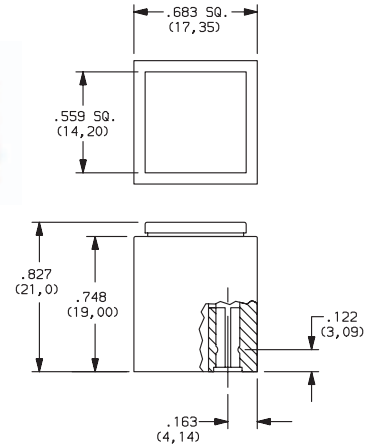
Pushbutton

### STYLE

**F21** FRV



**F22** FSR



### SHELL COLOR

**01** (STD.) BLACK

### LENS COLOR

| OPTION CODE | COLOR       |
|-------------|-------------|
| <b>02</b>   | WHITE       |
| <b>03</b>   | RED         |
| <b>06</b>   | YELLOW      |
| <b>08</b>   | GREEN       |
| <b>12</b>   | ORANGE      |
| <b>16</b>   | CLEAR / WT. |

### LAMP

#### North America

| OPTION CODE | LAMP       |
|-------------|------------|
| <b>01</b>   | 6V / 30mA  |
| <b>02</b>   | 12V / 30mA |
| <b>03</b>   | 24V / 30mA |

#### Europe

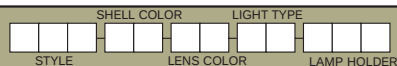
| OPTION CODE | LAMP       |
|-------------|------------|
| <b>04</b>   | 5V / 60mA  |
| <b>05</b>   | 6V / 40mA  |
| <b>06</b>   | 12V / 40mA |
| <b>07</b>   | 24V / 20mA |

### LAMP HOLDER

| OPTION CODE | DESCRIPTION                                                                                                                                                                                                                      |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FL1</b>  | Standard version. No electrical connection to module. Lamps are illuminated by applying voltage to the solder lugs of the lampholder contacts.                                                                                   |
| <b>FL2</b>  | For use only on modules with solder lugs on top face. One of the lampholder contacts is electrically linked with the module by means of a blade spring connecting the normally closed contact of the left side front changeover. |

# C&K F Series Pushbutton Switches

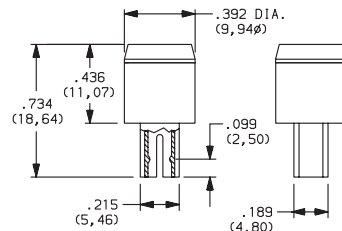
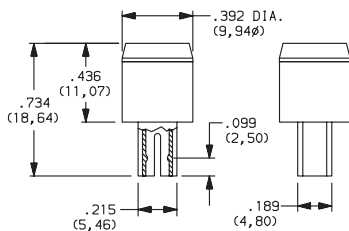
## CENTRAL MOUNTED ILLUMINATED BUTTON



### STYLE

**F24** FLB (F200)

**F25** FLC



### SHELL COLOR

| OPTION CODE | COLOR        |
|-------------|--------------|
| <b>01</b>   | (STD.) BLACK |
| <b>02</b>   | WHITE        |
| <b>05</b>   | GRAY         |

### LENS COLOR

| OPTION CODE | COLOR       |
|-------------|-------------|
| <b>03</b>   | RED         |
| <b>06</b>   | YELLOW      |
| <b>07</b>   | BLUE        |
| <b>08</b>   | GREEN       |
| <b>12</b>   | ORANGE      |
| <b>16</b>   | CLEAR / WT. |

### LIGHT TYPE

| OPTION CODE | DESCRIPTION     |
|-------------|-----------------|
| <b>01</b>   | Lamp, 6V        |
| <b>02</b>   | Lamp, 12V       |
| <b>03</b>   | Lamp, 28V       |
| <b>04</b>   | LED, green      |
| <b>05</b>   | LED, red        |
| <b>06</b>   | LED, yellow     |
| <b>07</b>   | Neon, 110-220AC |

### LAMP HOLDER

| OPTION CODE | DESCRIPTION                                                           |
|-------------|-----------------------------------------------------------------------|
| <b>LZ1</b>  | Illumination dependent on button position. Button depressed, lamp on. |
| <b>LZ2</b>  | Illumination independent of button position.                          |



Third Angle  
Projection

Dimensions are shown: IN (mm)  
Dimensions subject to change

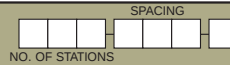


A

Pushbutton

# C&K F Series Pushbutton Switches

CHASSIS



A

Pushbutton

## NUMBER OF STATIONS

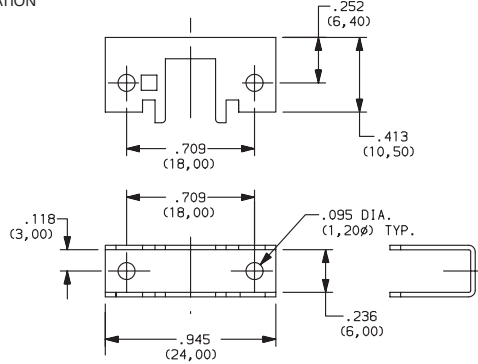
**C00 Thru C10**

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

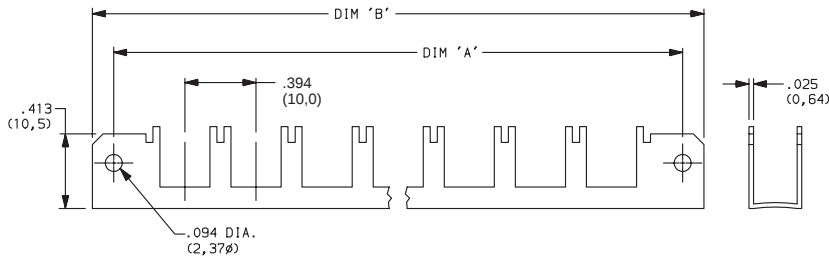
**NOTE:** Single station chassis available with mounting configurations, consult factory.

## SPACING

**00** SINGLE STATION

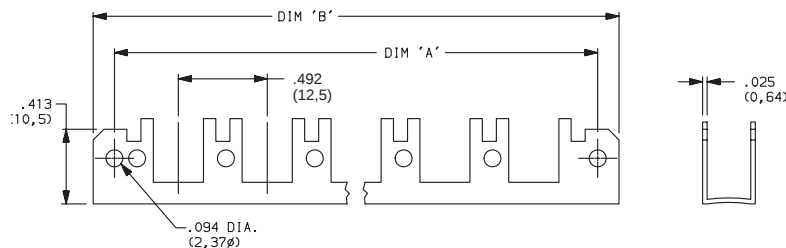


**10** 10mm



| 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     |



Third Angle  
Projection

Dimensions are shown: IN (mm)  
Dimensions subject to change

# C&K F Series Pushbutton Switches



A

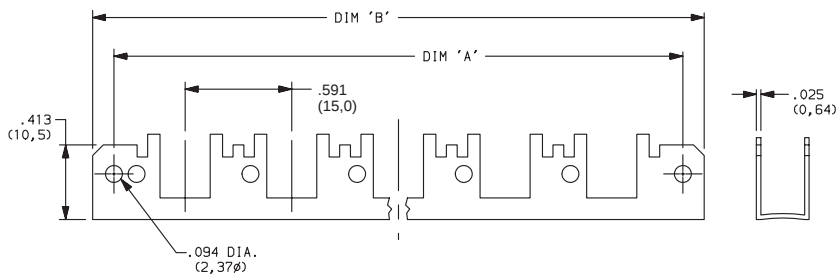
Pushbutton



## SPACING

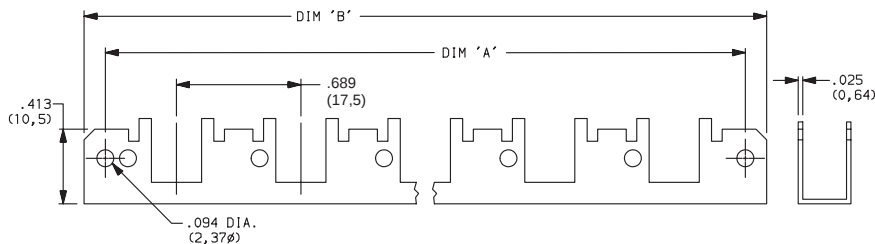
**15** 15mm

| 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     |



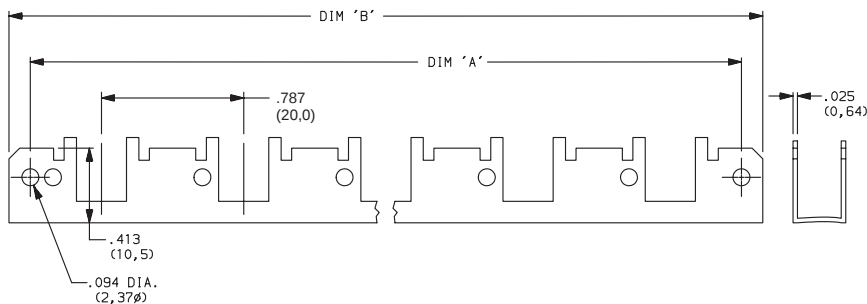
**17.5** 17.5mm

| 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     |



Third Angle  
Projection

Dimensions are shown: IN (mm)  
Dimensions subject to change