

## Feature

- 1.High resolution of 12-pulse/12-detent and 24-pulse/24-detent in 12mm size.
- 2.The adoption of a new shaft and bushing create a comfortable feel with high accuracy.
- 3.Incremental type.                      4.Long Life Type Available.

## F12E Series Rotary Encoder

### Electrical characteristics

- Rated Power.....DC 5V 10mA(1mA Min)
- Fluttering..... $t_1, t_3 \leq 3\text{ms}$
- Insulation Resistance..... More than  $10\text{M}\Omega$  at DC50V 1mA
- Withstand voltage.....1 minute at AC 50V 1mA
- Sliding Noise(Bounce)..... $t_2 \leq 2\text{ms}$
- Phase Difference.....  $\Delta T \geq 0.08T$

### Mechanical characteristics

- Rotational Torque of Detent.....30~150 gf.cm(at 5~35°C)
- Rotational Torque .....10gf.cm~90gf.cm
- Total Rotational Angle.....360° Continuous
- Number and Position of Detent.....12Detents ( Angle: $30^\circ \pm 3^\circ$  )  
24Detents ( Angle: $15^\circ \pm 3^\circ$  )
- Push-Pull Strength of shaft.....5.0Kgf Min

### Switch characteristics

- Contact resistance.....100m $\Omega$  Max
- Maximum ratings.....DC 5V ,10mA(1mA Min)
- Insulation resistance.....More than  $10\text{M}\Omega$  at DC 50V ,1mA
- Withstand voltage.....1 minute at AC 60V 1mA
- Travel..... $0.5^{+0.4}_{-0.3}$  mm
- Operating Force..... 500 $\pm$ 100 gf

### Durability

- Rotational Life.....30,000 Cycles Min
- Operating Temperature Range.....-10°C ~ +70°C

## HOW TO ORDER

<b>F12E-</b>	<b>N</b>	<b>5</b>	<b>V</b>	<b>1</b>	<b>B</b>	<b>F</b>	<b>1</b>
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Model Series

Code	Switch Option
N	No Switch
S	With Momentary Switch

Shaft Type & Length  
See Note 1

Code	Bushing Length
5	5 mm
7	7 mm
2	12mm

Code	Bushing Type
B	Φ6.8 Plain Bushing with Bushing Length 5mm Φ9 Plain Bushing with Bushing Length 7mm
M	M9 Threaded Bushing

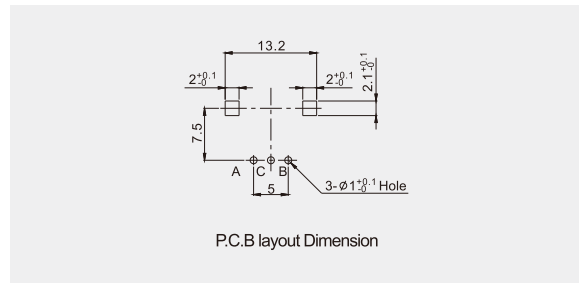
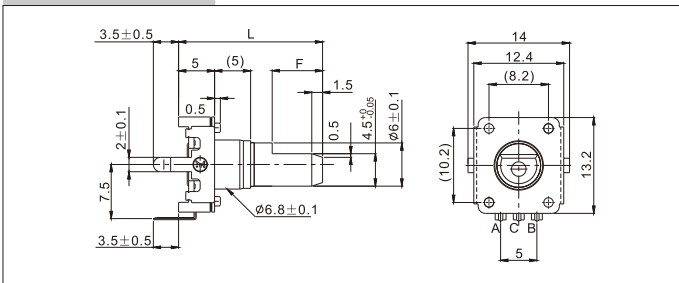
Code	Terminal Configuration
V	Side Adjust, PC Pins
H	Top Adjust, PC Pins

Code	Pulse and Detent
1	12 Pulse without Detent
2	12 Pulse with 12 Detents
3	24 Pulse without Detent
4	24 Pulse with 24 Detents

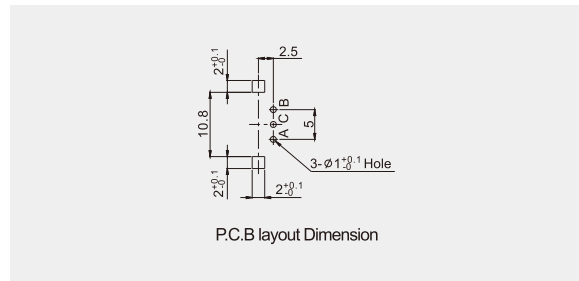
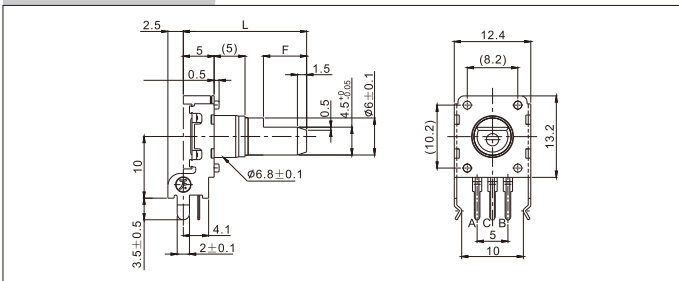
### Note 1: Shaft Type & Shaft Length:

F-Type		Switch Option:S					Switch Option:N						
		Bushing Length H =5					Bushing Length H =12						
		Bushing type:B&M					Bushing Type:M						
		Code	1	2	3	4	5	Code	1	2	3		
		L	17.5	20	22.5	25	30	L	19.5	24.5	29.5		
		F	5	7	7	12	12	F	7	12	12		
		Switch Option:N											
		Bushing Length H =7											
		Bushing Type:B											
		Code	1	2	3	4	5						
		L	20	25	25	30	35						
		F	7	7	12	12	12						
		Switch Option:N											
		Bushing Length H =5					Bushing Length H =7						
		Bushing type:B					Bushing Type:M						
Code	1	2	3	4	5	6	7	Code	1	2	3	4	5
L	15.4	15.4	17.5	20	22.5	25	30	L	14.5	19.5	19.5	24.5	29.5
F	4	5	5	7	7	12	12	F	7	7	12	12	12
Pulse	24		12 or 24										

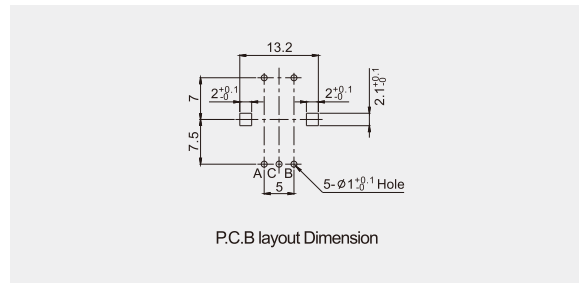
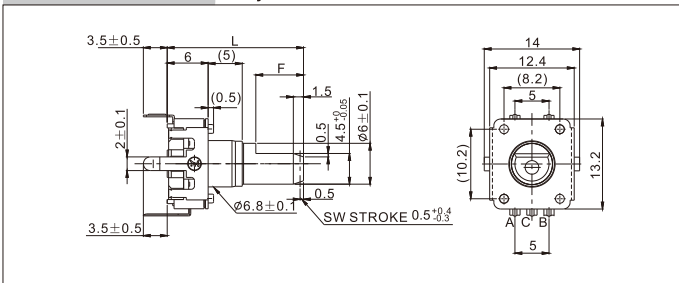
**F12E-N5H** □ B No Switch, 5mm Bushing Length, Top Adjust



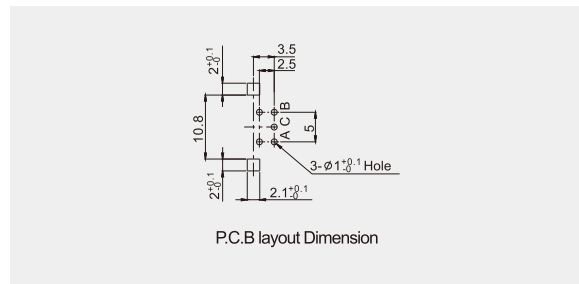
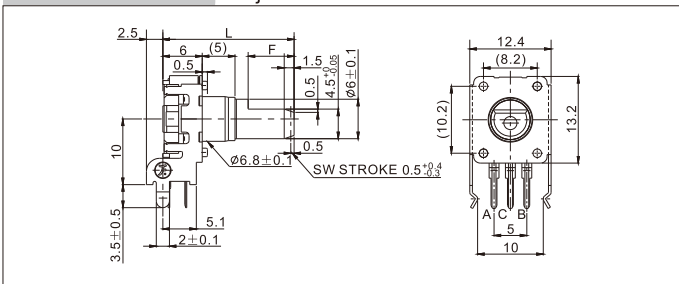
**F12E-N5V** □ B No Switch, 5mm Bushing Length, Side Adjust



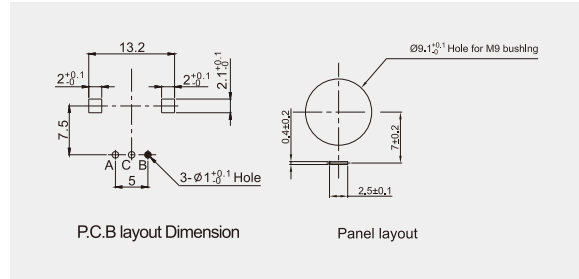
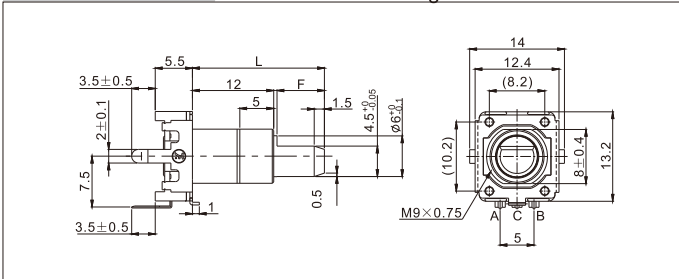
**F12E-S5H** □ B With Push Switch, 5mm Bushing Length, Top Adjust



**F12E-S5V** □ B With Push Switch, 5mm Bushing Length, Side Adjust



**F12E-N2H** □ M No Switch, 12mm Bushing Length, Top Adjust, M9 Threaded Bushing



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