

## Feature

1. Compact and highly accurate contact type encoder.
2. 0.5mm-travel push switch with compliance to 5.9 mm height.
3. Incremental type.
4. Long Life Type Available.

## F11E 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  $100\text{M}\Omega$  at 250V 1mA
- Withstand Voltage..... 1 minute at AC 300V 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)
- Total Rotational Angle..... 360° Continuous
- Number and Position of Detent..... 15 Detents ( Angle: $24^\circ \pm 3^\circ$  )  
20 Detents ( Angle: $18^\circ \pm 3^\circ$  )
- Push-Pull Strength of Shaft..... 8.0Kgf Min for 10sec.
- Bushing & Nut Tight Strength..... 10.0Kgf.cm Min

### Durability

- Rotational Life..... 30,000 Cycles Min
- Operating Temperature Range.....  $-10^\circ\text{C} \sim +70^\circ\text{C}$

### Switch characteristics

- Contact Resistance.....  $100\text{m}\Omega$  Max
- Maximum Ratings..... DC 5V, 10mA (1mA Min)
- Insulation Resistance..... More than  $100\text{M}\Omega$  at DC 250V, 1mA
- Withstand Voltage..... 1 minute at AC 300V, 1mA
- Travel.....  $0.5^{+0.4}_{-0.3}$  mm
- Operating Force.....  $600 \pm 200\text{gf}$

## HOW TO ORDER



Model Series

Code	Switch Option
N	No Switch
S	With Momentary Switch

Code	Bushing Length
5	5 mm
7	7 mm

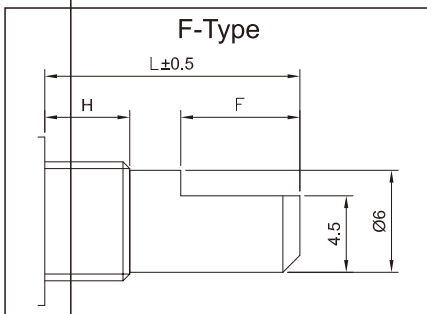
Code	Terminal Configuration
V	Side Adjust, PC Pins
H	Top Adjust, PC Pins

Shaft Type & Length  
See Note 1

Code	Bushing Type
B	Φ7 Plain Bushing
M	M7 Threaded Bushing

Code	Pulse and Detent
1	15 Pulses without Detent
2	15 Pulses with 30 Detents
3	20 Pulses without Detent
4	20 Pulses with 20 Detents

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



Switch Option:N											Switch Option:N										
Bushing Length H =5											Bushing Length H =7										
Code	1	2	3	4	5	6	7	8	9	0	Code	1	2	3	4	5	6	7	8	9	0
L	8.5	10	11	12	13	14	15	20	25	30	L	15	15	17.5	20	20	20	20	25	30	
F	2	2	5	5	6	7	7	12	12	12	F	4	7	5	7	8	10	12	12	12	
Switch Option:S											Switch Option:S										
Bushing Length H =5											Bushing Length H =7										
Code	1	2	3	4	5	6	7	8	9	0	Code	1	2	3	4	5	6	7	8	9	0
L	8.5	10	11	12	13	14	15	20	25	30	L	15	15	15	17	19	20	20	21	25	30
F	2	2	4	5	6	7	7	12	12	12	F	5	6	7	7	7	10	12	10	12	12

Encode

**Q-Type**

Switch Option:S										
Bushing Length H =5										
Code	1	2	3	4	5	6	7			
L	12	13	15	18	20	25	30			
P	4.5	4.5	7	7	7	11	14			
T	4.5	4.5	6	6	6	10	12			
M	1	1	2	5	2	2	4			

Switch Option:N										
Bushing Length H =7										
Code	1	2	3	4						
L	15	20	25	30						
P	7	7	11	14						
T	6	6	10	12						
M	1	1	2	4						

Switch Option:N										
Bushing Length H =5										
Code	1	2	3	4	5					
L	12.5	15	20	25	30					
P	7	7	7	11	14					
T	6	6	6	10	12					
M	1	1	1	2	4					

Switch Option:S										
Bushing Length H =7										
Code	1	2	3	4						
L	15	20	25	30						
P	6	7	11	14						
T	5	6	10	12						
M	1	1	2	4						

**S-Type**

Bushing Length H =5 or 7					
Code	1	2	3	4	5
L	10	15	20	25	30

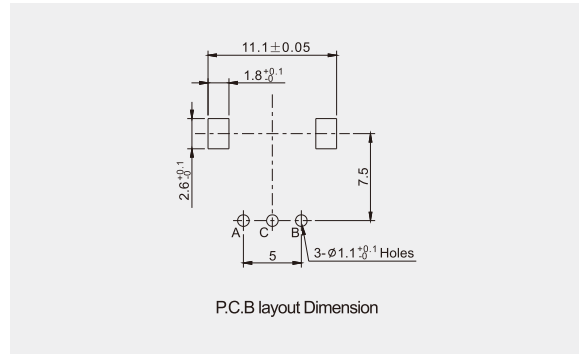
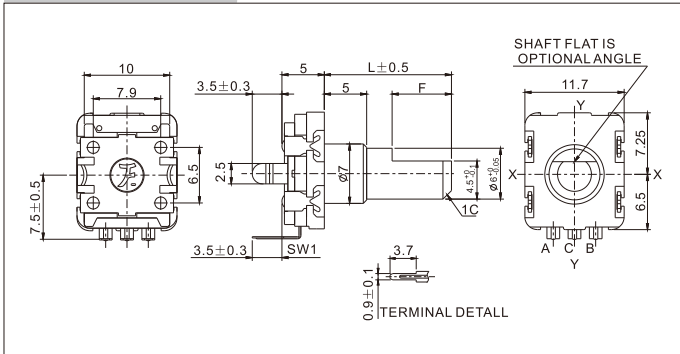
**B-Type (Die-casting)**

Switch Option:S		
Bushing Length H =5		
Code	1	2
L	12	15
P	4.5	7
T	4.5	6
M	1	2

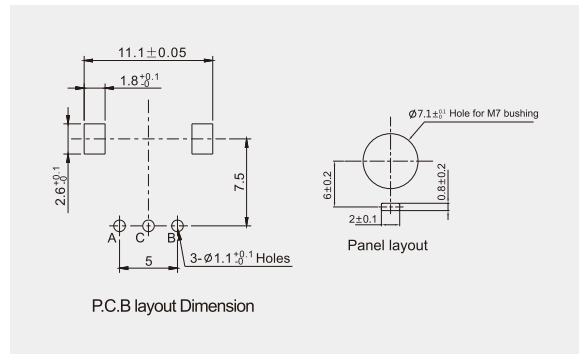
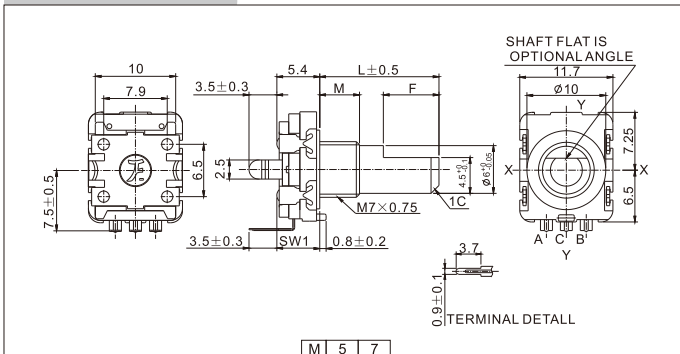
**A-Type (Die-casting)**

Switch Option:N					Switch Option:S				
Bushing Length H =5 or 7					Bushing Length H =5				
Code	1				Code	1	2	3	4
L	15				L	15	20	20	20
F	7				F	7	7	10	12

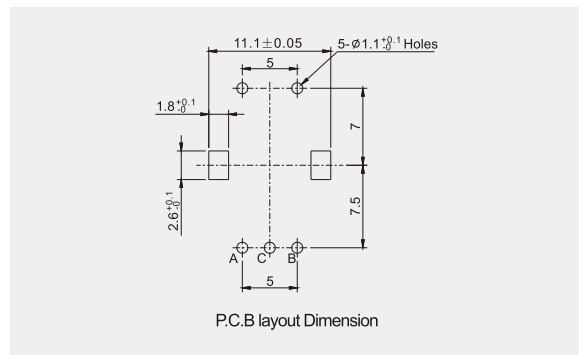
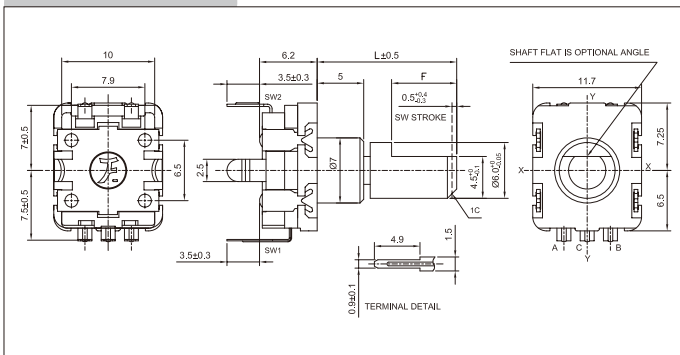
**F11E-N5H□B** No Switch, Top Adjust,  $\Phi 7$  Plain Bushing



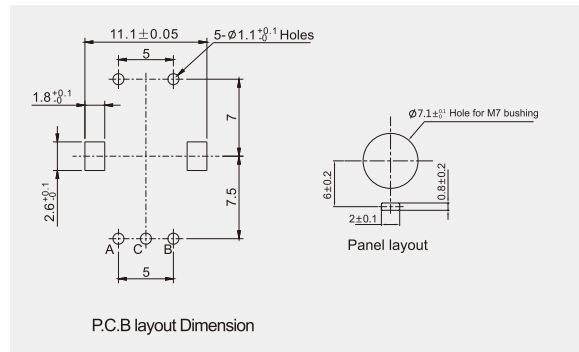
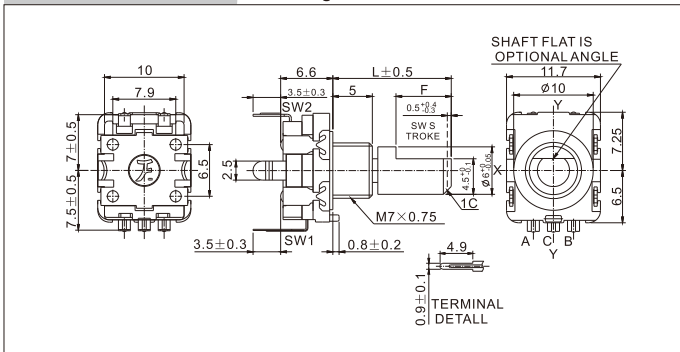
**F11E-N□H□M** No Switch, Top Adjust, M7 Threaded Bushing



**F11E-S5H□B** With Push Switch, Top Adjust,  $\Phi 7$  Plain Bushing

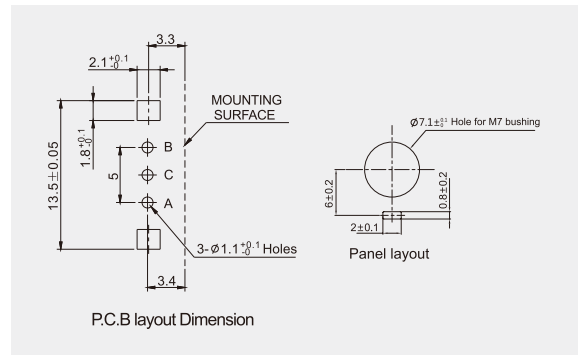
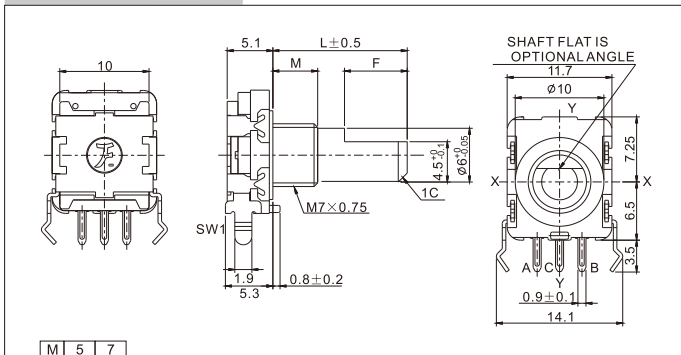


**F11E-S5H□M** With Push Switch, Top Adjust, M7 Threaded Bushing



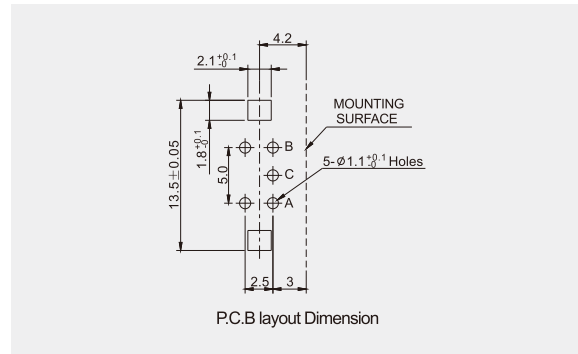
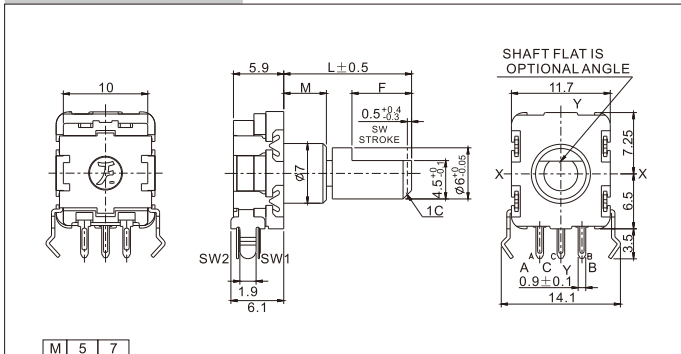
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**F11E-N□V□M** No Switch, Side Adjust, M7 Threaded Bushing



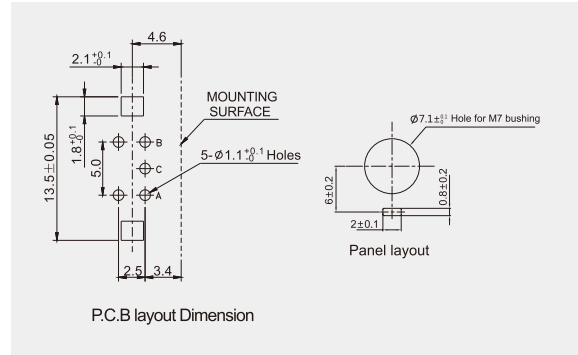
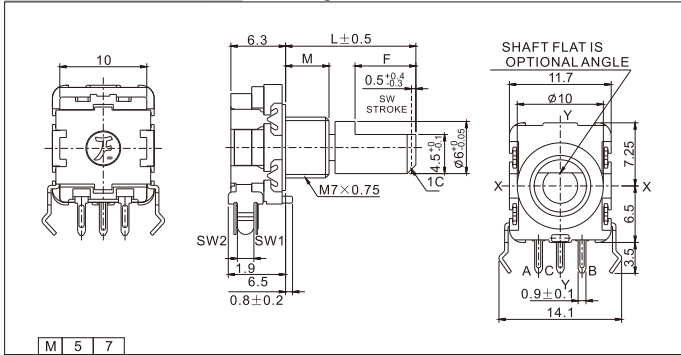
M 5 7

**F11E-S□V□B** With Push Switch, Side Adjust,  $\phi 7$  Plain Bushing



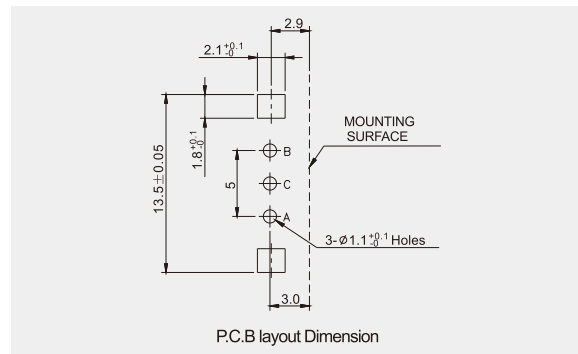
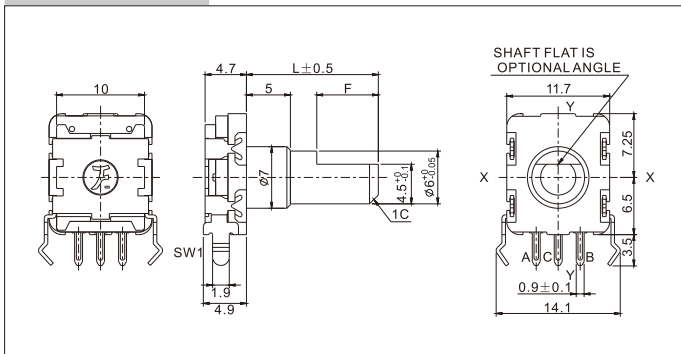
M 5 7

**F11E-S□V□M** With Push Switch, Side Adjust, M7 Threaded Bushing



M 5 7

**F11E-N5V□B** No Switch, Side Adjust,  $\phi 7$  Plain Bushing



P.C.B layout Dimension