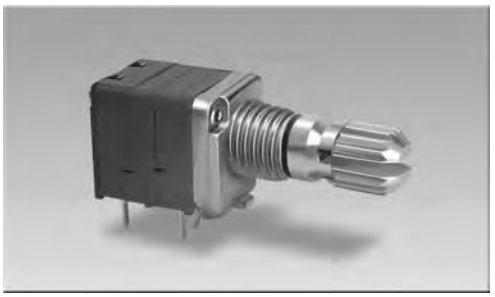
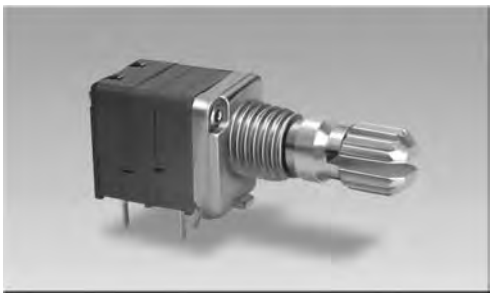
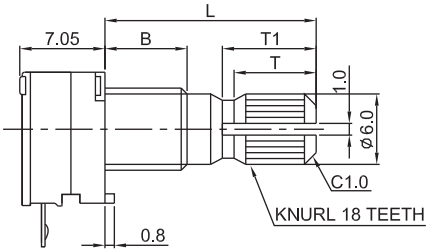
EC09MHB-B | EC09MSDHB-B | EC09MSEHB-B

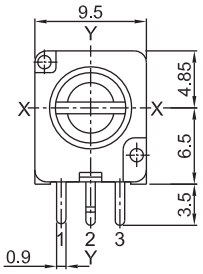




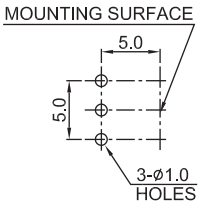
Outline Drawing | Features individual specifications

EC09MHB-B



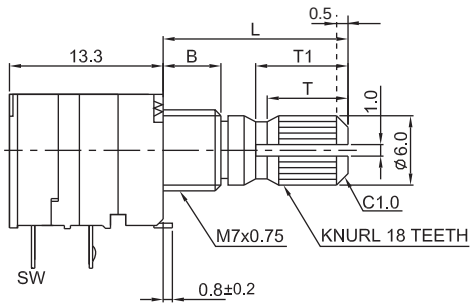


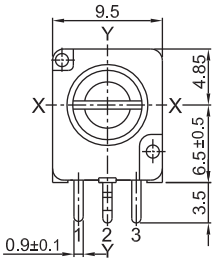
SHAFT SHOWN IN
FULL C.C.W POSITION



P.C.B MOUNTING HOLES DETAIL

EC09MSDHB-B





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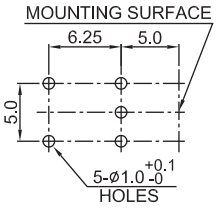
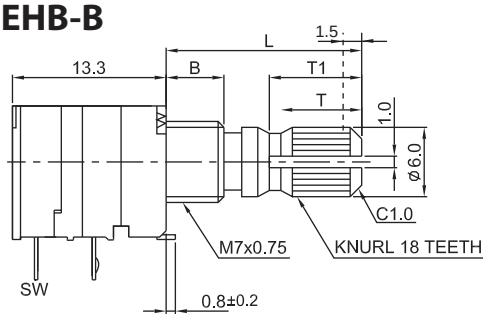
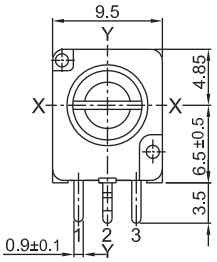
FULL C.C.W POSITION



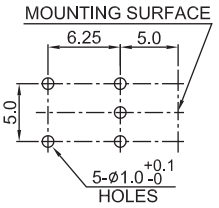
P.C.B MOUNTING DETAIL
TOLERANCES±0.1
VIEWED FROM MOUNTING SIDE

EC09MSEHB-B





SHAFT SHOWN IN
FULL C.C.W POSITION



P.C.B MOUNTING DETAIL
TOLERANCES±0.1
VIEWED FROM MOUNTING SIDE

Common Specifications

Pulse	Number of detent	Phase difference (msec)	Chattering (msec)	Sliding noise (msec)	Insulation resistance	Dielectric strength	Detent torque (gf•cm)	Rotational life (cycle)
12	12	3	5	5	250V DC 100MΩ MIN	300V AC 1 min	150±80	30,000
	24	3	5	5			150±80	
15	30	3	5	5			150±50	

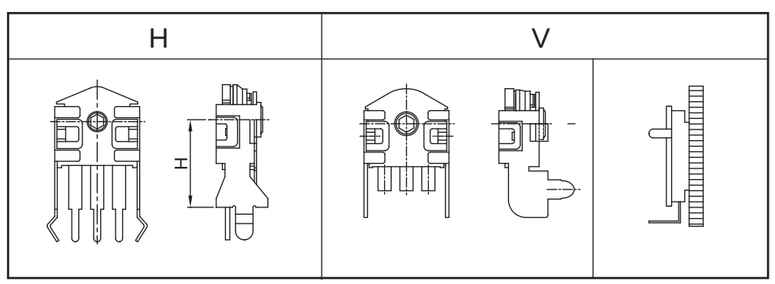
Switch Specifications

Rating	Contact resistance	Insulation resistance	Dielectric strength	Contact arrangement	Travel of switch (mm)	Operating force (gf)	Operating life (cycle)
DC 5V 10 mA	100mΩ	250V DC 100MΩ MIN	300V AC 1 min	PUSH ON	0.5	400+400/-200	20,000
					1.5	400+400/-200	

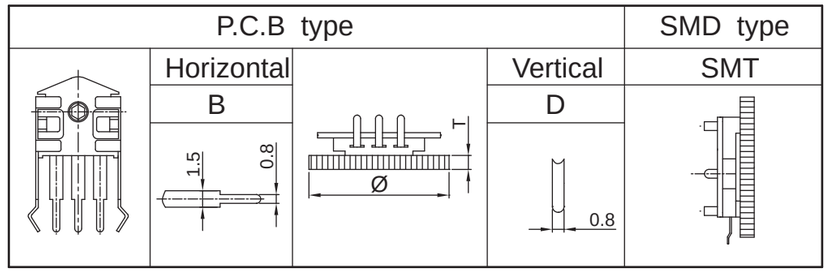
EC10mm Series Code Explanation

EC10F	H	9	F	-	B	-	16*1.6	□	-	12	-	24C	-	□□□
1	2	3	4		5		6	7		8		9		10

1. Product Lines
   EC10F— 10mm Size Rotary Encoder
   EC10J— 10mm Size With Teeth Type Rotary Encoder
2. Horizontal (H) Type or Vertical (V) Type



3. Mounting Height(H) : 7mm, 9mm, 11mm (only EC10FH Series)
4. With Frame: "F"
5. Type Of Terminal

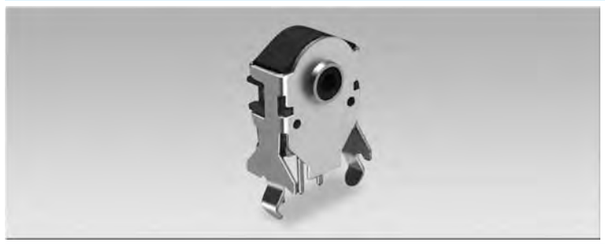


6. Shaft Diameter*Shaft Thickness (Only For EC10J Series)
7. Knob Angle (Only For EC10J Series)
8. Output Pulse: 12 - 12Pluse

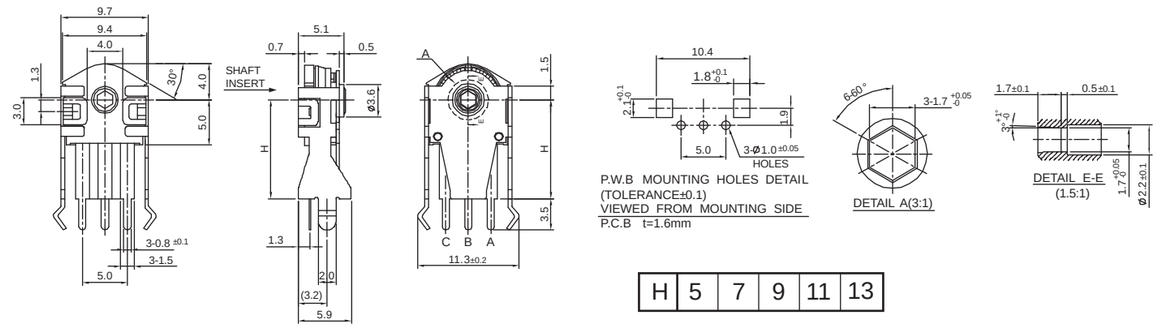
Pulse NO.	12 Pulses
Detent NO.	24C

9. Number of Detent : Blank - None, 24C -24 Detent
10. Serial No.

The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

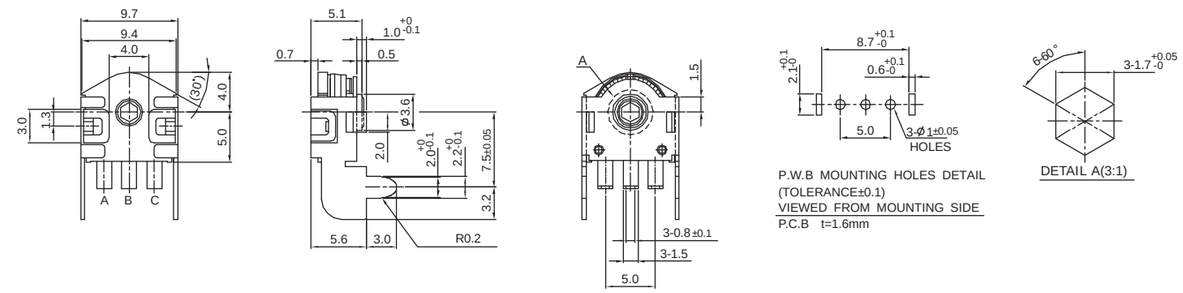
EC10FH9F1-B	EC10FVF-D
	
Outline Drawing	Features individual specifications

EC10FH9F1-B



H	5	7	9	11	13

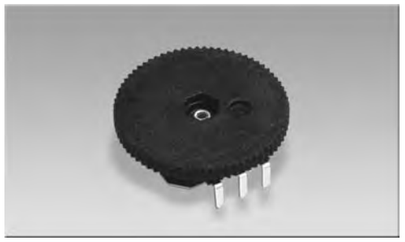
EC10FVF-D



Products Specifications

Pulse	Number of detent	Phase difference (msec)	Chattering (msec)	Sliding noise (msec)	Insulation resistance	Dielectric strength	Detent torque (gf•cm)	Rotational life (cycle)
12	24	4 min.	5 max.	5 max.	50V DC 50MΩ MIN	50V AC 1 min	50±30	100,000

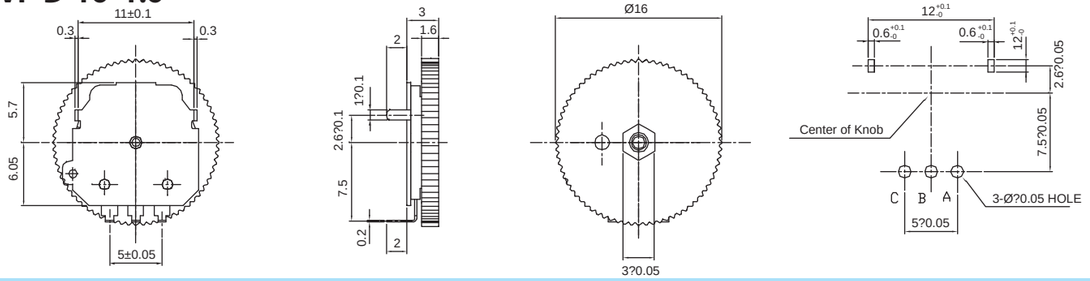
The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

EC10JVF-D-16*1.6	EC10JVF-D-16*2.2	EC10JF-SMT-16*2.2
		

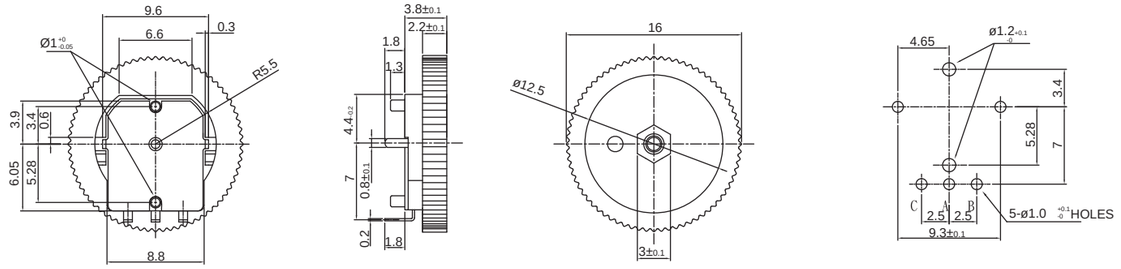
Outline Drawing

Features individual specifications

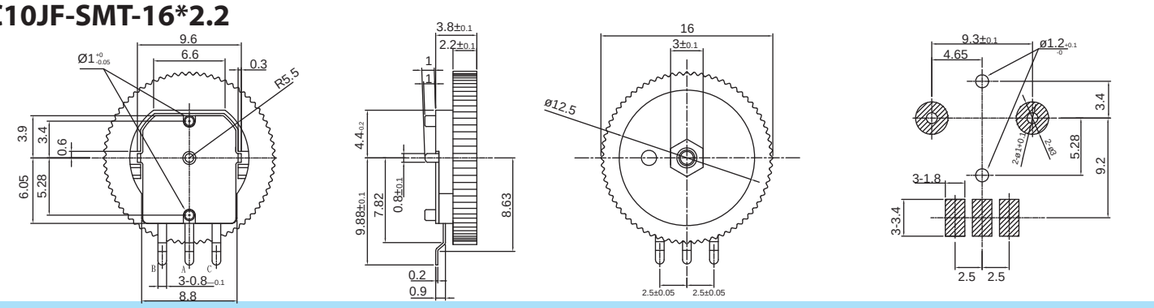
EC10JVF-D-16*1.6



EC10JVF-D-16*2.2



EC10JF-SMT-16*2.2



Common Specifications

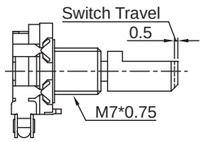
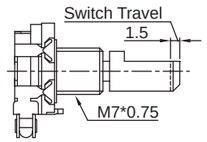
Pulse	Number of detent	Phase difference (msec)	Chattering (msec)	Sliding noise (msec)	Insulation resistance	Dielectric strength	Detent torque (gf•cm)	Rotational life (cycle)
12	24	4	8	8	50V DC 50MΩ MIN	50V AC 1 min	10~100	10,000

The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

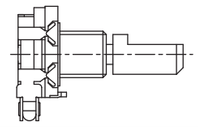
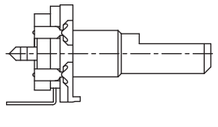
EC11M Series Code Explanation

EC11M	S	D	V	□	NB	A	F	X	-	D	-	20	K	-	20	-	20C	-	□	□	□
1	2	3	4	5	6	7	8	9		10		11	12		13		14		15		

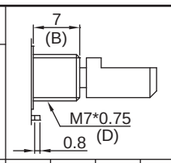
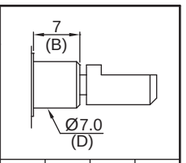
1. Product Lines of EC11M (11mm Metal Shaft Encoder)
2. Switch : S- With Switch; Blank- Without Switch
3. Swtich Travel

Code	D	E
Travel		

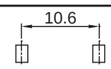
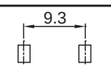
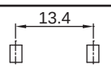
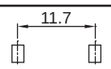
4. Horizontal Type (H) or Vertical Type (V)

Code	H	V
Horizontal or Vertical		

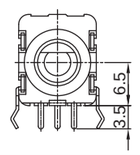
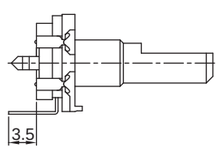
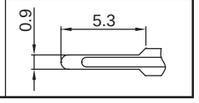
5. Bushing Length : Blank- 7mm (Standard Type)
6. Type of Bushing

1	(With Screw)				2	(Without Screw)			
	B (Standard)					NB (Standard)			
	Other type	B	5	9		Other type	B	3.5	5	10
		D	M7*0.75				D	Ø7.0		

7. Bushing Material: Blank- Zinc Alloy, A-Aluminum Alloy
8. With Frame: "F"
9. Frame Size

Size				
Code	W	X	Y	Z

10. Type of Terminal

P.C.B Type			
	Horizontal B		Vertical D 

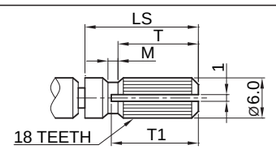
The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

EC11M Series Code Explanation

EC11M	S	D	V	□	NB	A	F	X	-	D	-	20	K	-	20	-	20C	-	□	□	□
1	2	3	4	5	6	7	8	9		10		11	12		13		14		15		

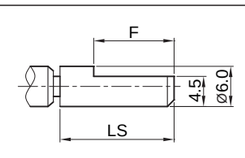
11. Shaft Length (See Drawing 1)
12. Type of Shaft (See Drawing 1)

K - Type



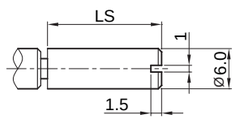
B: 5mm					B: 7mm				
L	15	20	25	30	L	15	20	25	30
LS	9.65	14.65	19.65	24.65	LS	7.65	12.65	17.65	22.65
T	6	10	10	12	T	5	9	10	12
M	1	1	2	4	M	0.5	1	2	4
T1	7	11	11	14	T1	5.5	10	11	14

F - Type



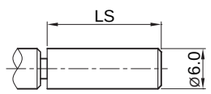
B: 5mm					B: 7mm				
L	15	20	25	30	L	15	20	25	30
LS	9.65	14.65	19.65	24.65	LS	7.65	12.65	17.65	22.65
F	7	12	12	12	F	5	7	12	12

S- Type



B: 5mm					B: 7mm				
L	15	20	25	30	L	15	20	25	30
LS	9.65	14.65	19.65	24.65	LS	7.65	12.65	17.65	22.65

R- Type



B: 5mm					B: 7mm				
L	15	20	25	30	L	15	20	25	30
LS	9.65	14.65	19.65	24.65	LS	7.65	12.65	17.65	22.65

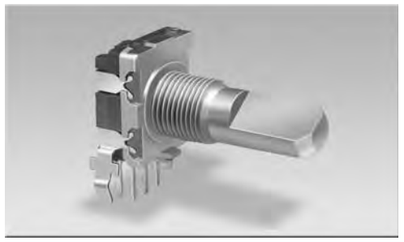
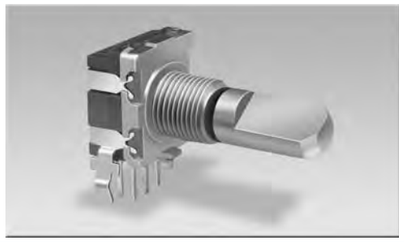
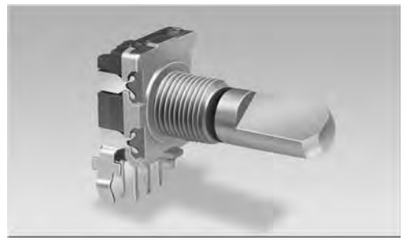
(Drawing 1)

13. Output Pulse : 15 - 15Pulse

Pulse No.	15 Pulses	16 Pulses	20 Pulses
Detent NO.	30C	16C	20C

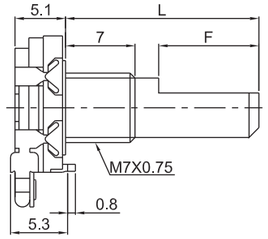
14. Number of Detent : Blank- None, 16C - 16 Detent
15. Series No.

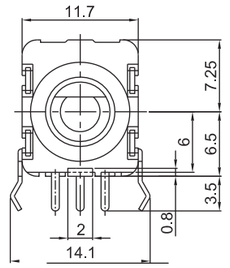
The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

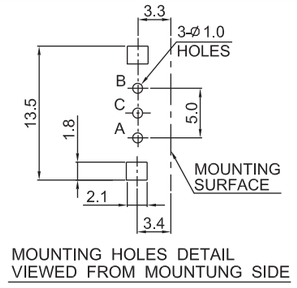
EC11MHBFZ-B	EC11MSDHBFZ-B	EC11MSEHBFZ-B
		

Outline Drawing — Features individual specifications

EC11MHBFZ-B

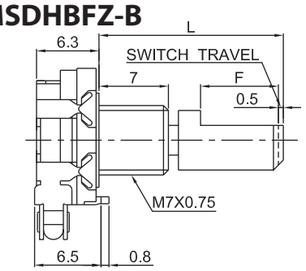


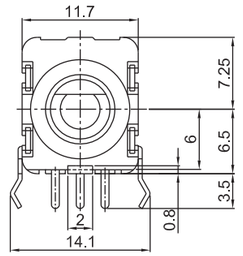


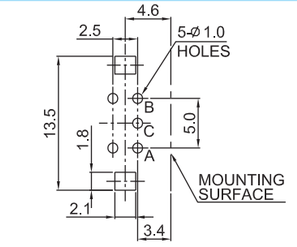


MOUNTING HOLES DETAIL
VIEWED FROM MOUNTUNG SIDE

EC11MSDHBFZ-B

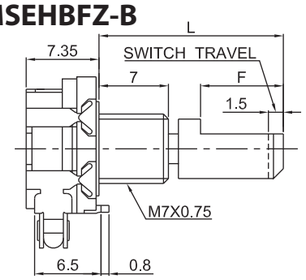


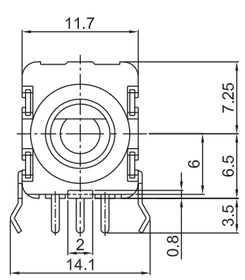


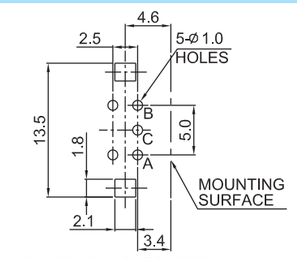


MOUNTING HOLES DETAIL
VIEWED FROM MOUNTUNG SIDE

EC11MSEHBFZ-B







MOUNTING HOLES DETAIL
VIEWED FROM MOUNTUNG SIDE

Products Specifications

Pulse	Number of detent	Phase difference (msec)	Chattering (msec)	Sliding noise (msec)	Insulation resistance	Dielectric strength	Detent torque (gf.cm)	Rotational life (cycle)
15	30	6 min.	2 max.	2 max.	250VDC 100M MIN	300V AC 1 min	122.4±71.4	15,000
16	16	4 min.	3 max.	3 max.			150±100	
20	20	4 min.	2 max.	2 max.			122.4±71.4	
24	24	3.5 min.	5 max.	5 max.			150±100	

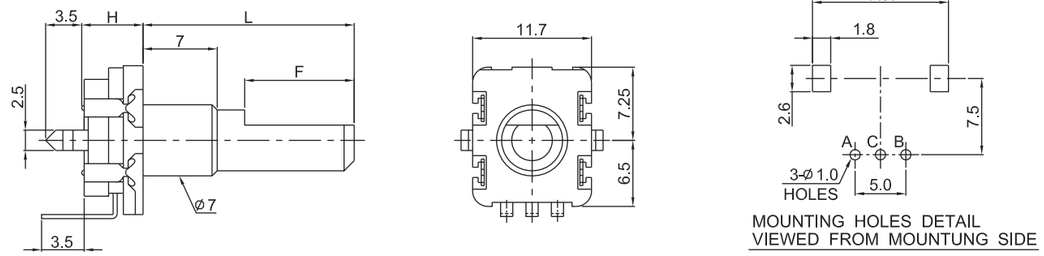
The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

EC11MVNBFX-D	EC11MSDVNBFX-D	EC11MSEVNBFX-D

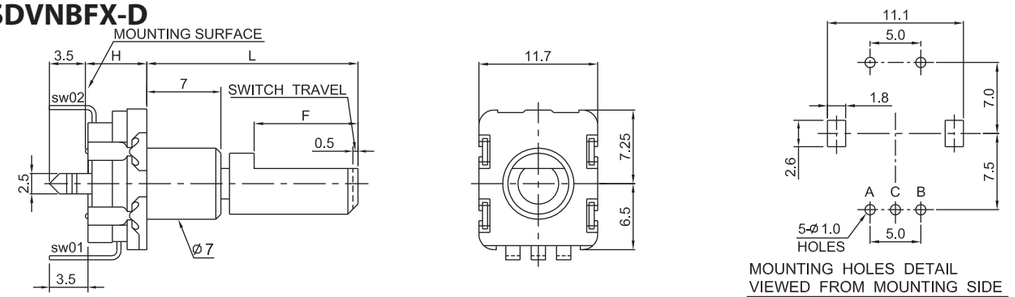
Outline Drawing

Features individual specifications

EC11MVNBFX-D



EC11MSDVNBFX-D



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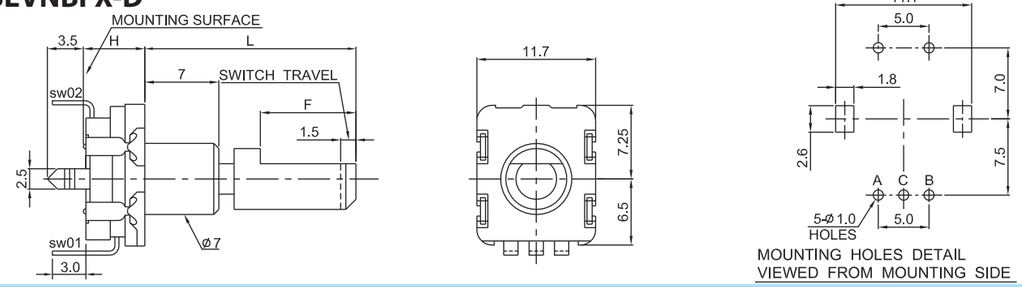


Switch Specifications

Rating	Contact resistance	Insulation resistance	Dielectric strength	Contact arrangement	Travel of switch (mm)	Operating force (gf)	Operating life (cycle)
DC 5V 10mA	100mΩ	250V DC 100mΩ MIN	300V AC 1 min	PUSH ON	0.5	600±300	20,000
					1.5	357 +112 -71	

The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

11mm LOW-PROFILE (GENERAL PURPOSE) ENCODERS

Incremental Type:

Size	Model	Pulse/rotation	Number of detent	Rotatic dual angle	Mounting method	Others
11mm	EC11M	20/360° 15/360° 16/360°	20 30 16	360° (Endless)	Fastened with bushing unit /snap -in	With push -on switch (Model without switch also available)

Standard Dimensions of Shaft And Buashing:

Bushing	H Dimensions			B
	Without Switch	0.5 Switch	1.5 Switch	
∅7	5.0	6.2	7.15	3.5 or 7
M7x0.75	5.4	6.6	7.55	5 or 7

Mechanical Characteristics:

Total rotational angle	360°
Click torque	5~19mN.m (51~194gf.cm)
Push pull strength	80N (8kgf)

Electrical Characteristics:

Ratings	5V DC, 10mA
Withstand voltage	300V AC
Max. operating current	10mA
Insulation resistance	More than 100mΩ at DC 300V

Durability:

Rotational life	15,000 cycles

The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

EC11LM Series Code Explanation

EC11LM	S	D	V	5	NB	F	-	D	-	20	K	-	20	-	20C	-	□□□
1	2	3	4	5	6	7		8		9	10		11		12		13

1. Product Lines of EC11LM (11mm Slim Type Encoder)
2. Switch : S- With Switch; Blank- Without Switch
3. Swtich Travel

Code	D	E
Travel	Switch Travel 0.5	Switch Travel 1.5

4. Vertical Type (V)

Code	V
Vertical	

5. Bushing Length
6. Type of Bushing

(Without Screw) NB (Standard)	5, Ø7.0

7. With Frame: "F"
8. Type of Terminal

P.C.B Type		SMD Type
	Vertical D	SMT
	0.9, 3.7	

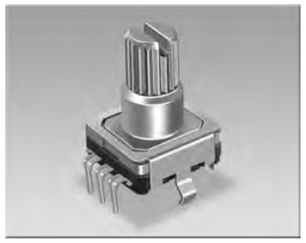
9. Shaft Length
10. Type of Shaft
11. Output Pulse : 15 - 15 Pulse

Pulse No.	15 Pulses
Detent NO.	30C

12. Number of Detent: Blank- None, 30C -30 Detent
13. Series No.

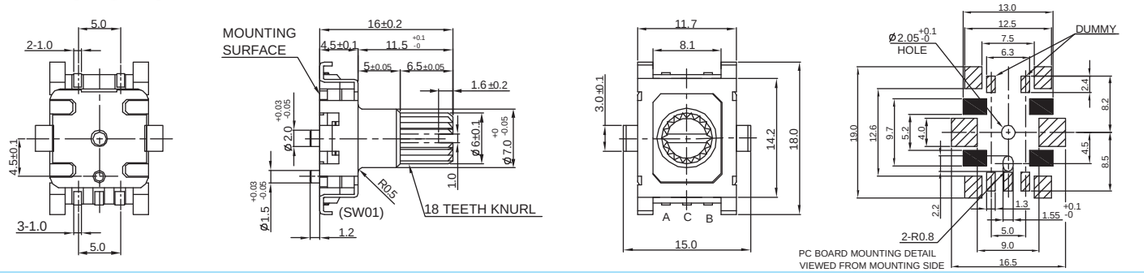
The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

EC11LM5NBF-SMT | EC11LMSD5NBF-SMT | EC11LMSE5NBF-SMT | EC11LMV5NBF-D

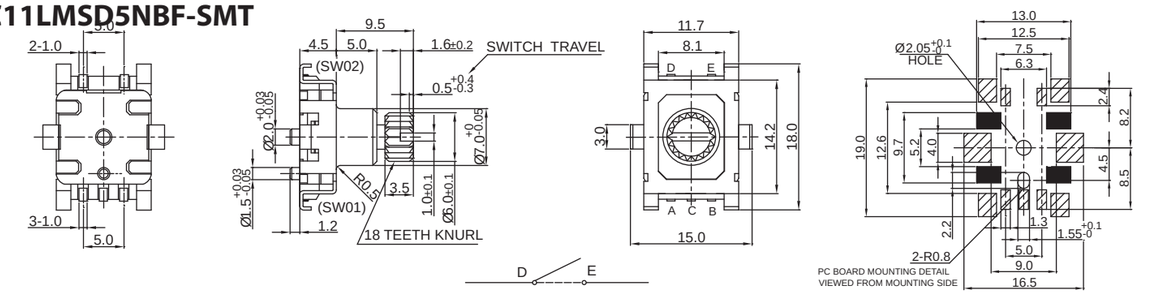


Outline Drawing — Features individual specifications

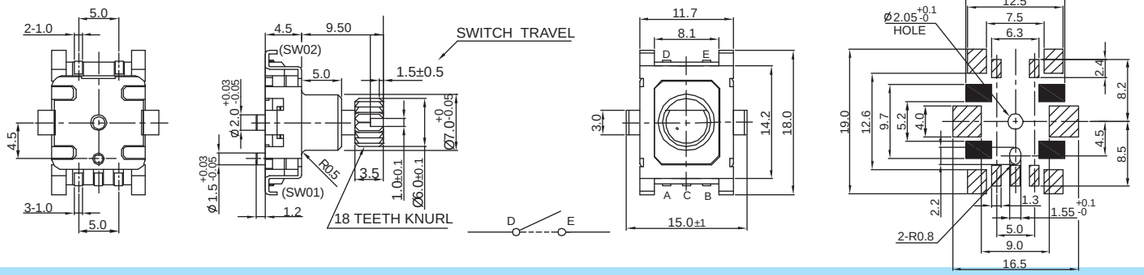
EC11LM5NBF-SMT



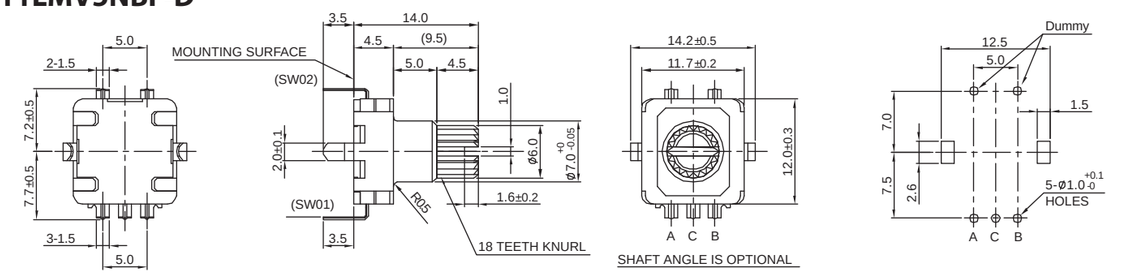
EC11LMSD5NBF-SMT



EC11LMSE5NBF-SMT

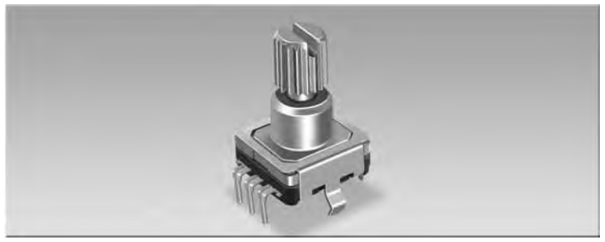


EC11LMV5NBF-D



The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

EC11LMSDV5NBF-D



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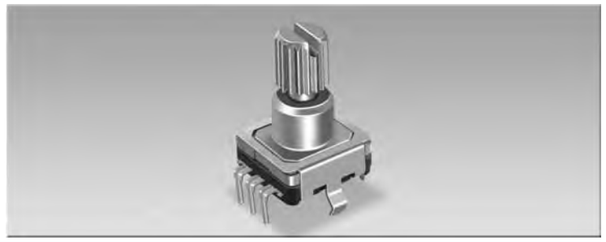
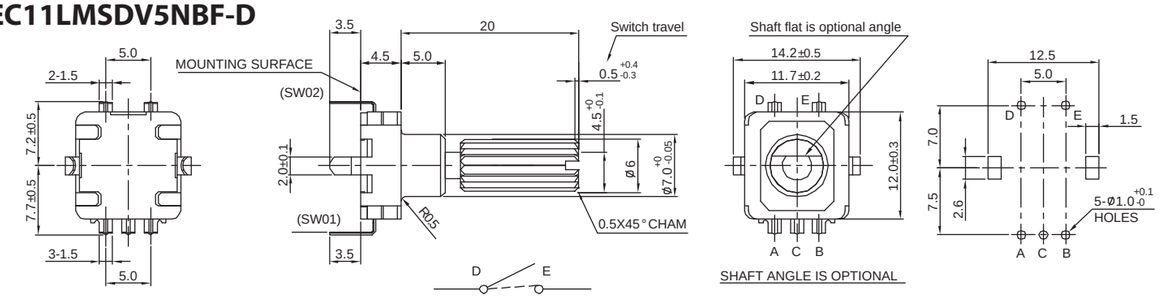
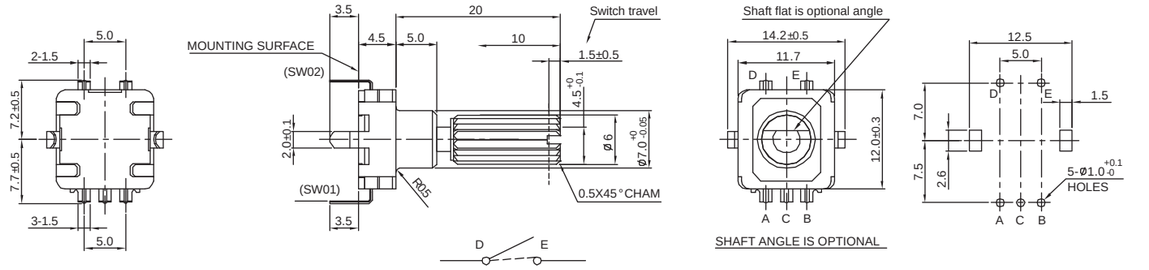


Outline Drawing

EC11LMSDV5NBF-D



EC11LMSEV5NBF-D



Products Specifications

Pulse	Number of detent	Phase difference (msec)	Chattering (msec)	Sliding noise (msec)	Insulation resistance	Dielectric strength	Detent torque (gf•cm)	Rotational life (cycle)
15	30	6 min.	2 max.	2 max.	250V DC 100MΩ MIN	300V AC 1 min	100±70	15,000

Switch Specifications

Rating	Contact resistance	Insulation resistance	Dielectric strength	Contact arrangement	Travel of switch (mm)	Operating force (gf)	Operating life (cycle)
DC 5V	100mΩ	250V DC 100MΩ MIN	300V AC 1 min	PUSH ON	0.5	300±100	20,000
					1.5	400±200	

Standard Dimension of Shaft

L	K
13.5 or 9.5	6.9 or 2.9
9.5	4.5

The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

EC12P Series Code Explanation

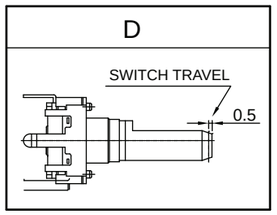
EC12P L □□ S D V B F A - D - 20 F - 12 - 12 C - □□□

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

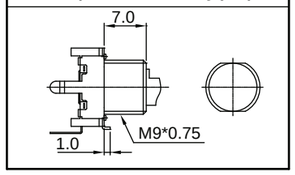
1. Product Lines of EC12P (12mm Insulated Shaft Encoder)
2. With " LED "
3. LED Color

Code	O	B	R	G
Color	Orange	Blue	Red	Green

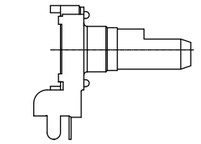
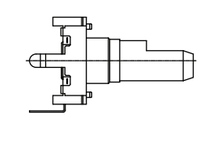
4. Switch : Blank - Without Switch , S-With Switch
5. Switch Travel

D


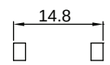
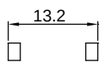
6. With Bushing : Blank- Without Bushing ; B- with Bushing

B (Standard Type)


7. Horizontal Type (H) or Vertical Type (V)

H	V
	

8. With Frame: "F"

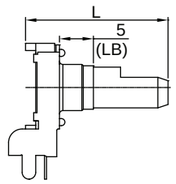
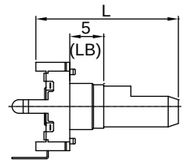
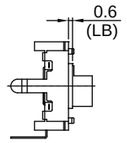
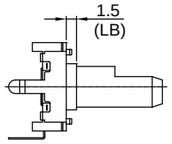
Frame Size (Snap-in)	Horizontal	Vertical
		

The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

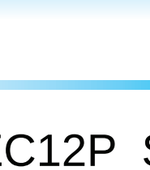
EC12P Series Code Explanation

EC12P	L	□□	S	D	V	B	F	A	-	D	-	20	F	-	12	-	12 C	-	□□□
1	2	3	4	5	6	7	8	9		10		11	12		13		14		15

9. "LB" Length: Blank-5mm (Standard Type)

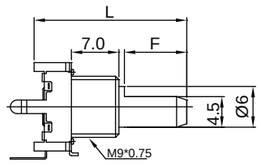
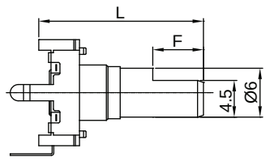
Horizontal	Vertical		
Standard	Standard	A	C
			

10. Type of Terminal

P.C.B Type			
	Horizontal		Vertical
	B		D
			

11. Shaft Length

12. Type of Shaft

F - Type													
With Bushing								Without Bushing						
L	15	17.5	20	22.5	25	30		L	15	17.5	20	25	30
F	7	5	7	7	12	12		F	7	5	7	12	12

13. Output Pulse : 12 - 12Pulse

14. Number of Decent : Blank- None , 12 -12C

Pulse NO.	12 Pulses	24 Pulses
Decent NO.	12C	24C

15. Serial No.

The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

EC12PHF-B

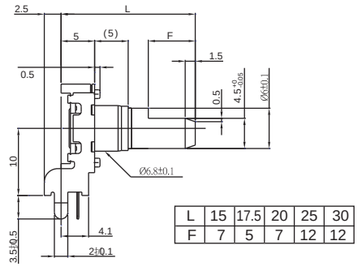
EC12PSDHF-B

EC12PVFA-D

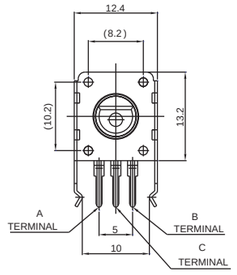
Outline Drawing

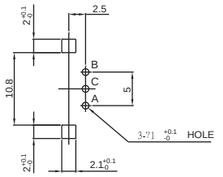
Features individual specifications

EC12PHF-B

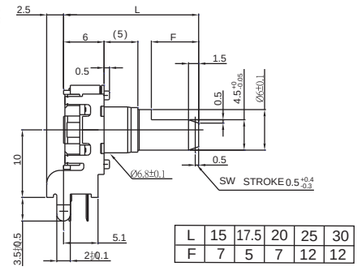


L	15	17.5	20	25	30
F	7	5	7	12	12

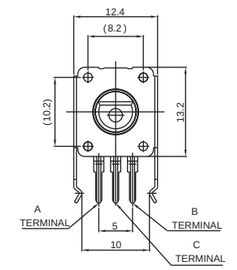




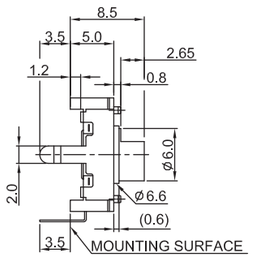
EC12PSDHF-B



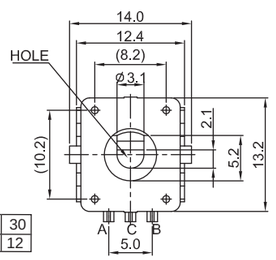
L	15	17.5	20	25	30
F	7	5	7	12	12

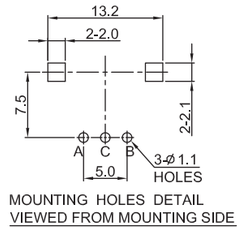


EC12PVFA-D



L	15	17.5	20	25	30
F	7	5	7	12	12





Products Specifications

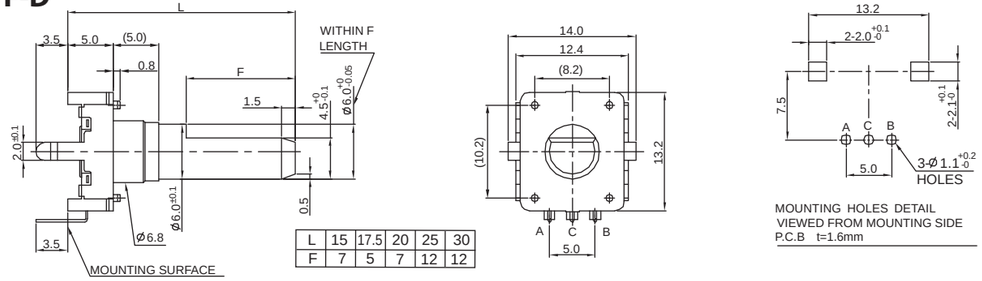
Pulse	Number of detent	Phase difference (msec)	Chattering (msec)	Sliding noise (msec)	Insulation resistance	Dielectric strength	Detent torque (gf‧cm)	Rotational life (cycle)
24	24	3.5 min.	3 max.	2 max.	50V DC 100MΩ MIN	50V AC 1 min	30.1~200.4	30,000
							30.1~200.4	

The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

EC12PVF-D　EC12PSDVF-D　EC12PVBF-D

Outline Drawing　　Features individual specifications

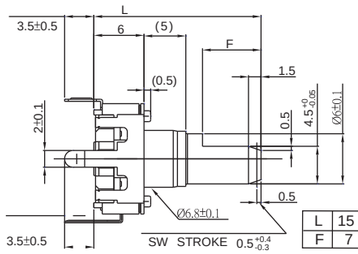
EC12PVF-D



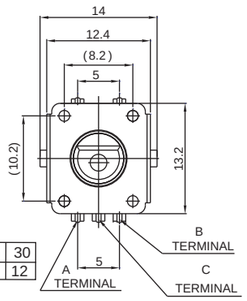
L	15	17.5	20	25	30
F	7	5	7	12	12

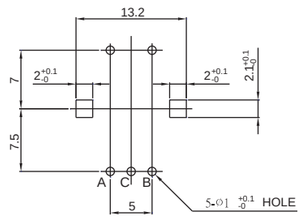
MOUNTING HOLES DETAIL
VIEWED FROM MOUNTING SIDE
P.C.B t=1.6mm

EC12PSDVF-D

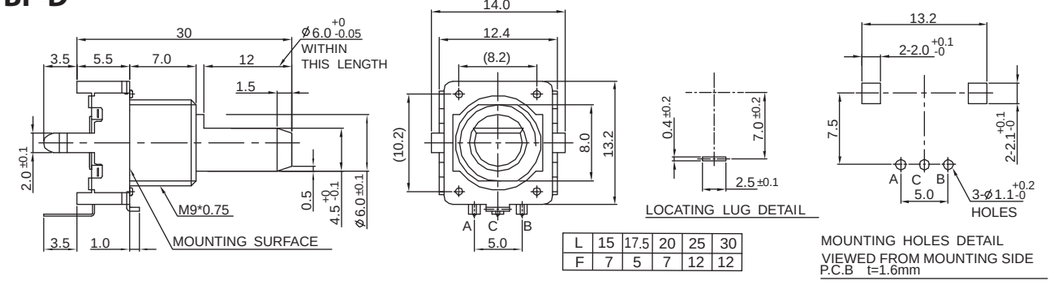


L	15	17.5	20	25	30
F	7	5	7	12	12





EC12PVBF-D



L	15	17.5	20	25	30
F	7	5	7	12	12

MOUNTING HOLES DETAIL
VIEWED FROM MOUNTING SIDE
P.C.B t=1.6mm

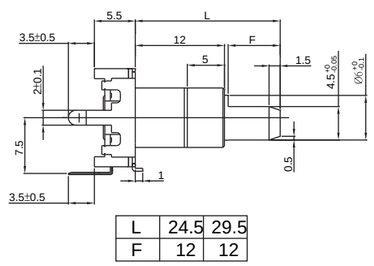
Switch Specifications

Rating	Contact resistance	Insulation resistance	Dielectric strength	Contact arrangement	Travel of switch (mm)	Operating force (gf)	Operating life (cycle)
DC 5V 10mA	100mΩ	250V DC 100MΩ MIN	300V AC 1 min	PUSH ON	0.5	300 +150 - 100	20,000

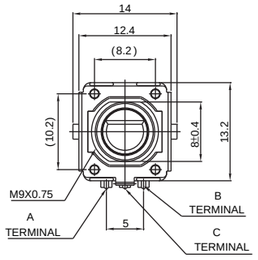
EC12PV12BF-D　EC12PVBF-D　EC12PVBPF-D

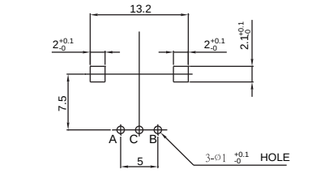
Outline Drawing　　Features individual specifications

EC12PV12BF-D

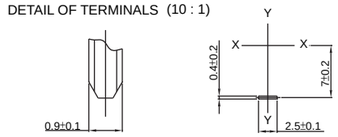


L	24.5	29.5
F	12	12

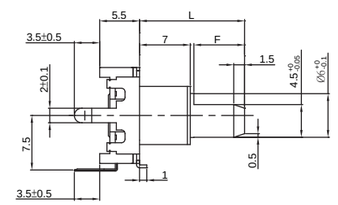




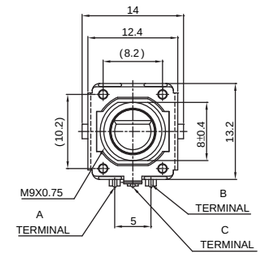
DETAIL OF TERMINALS (10 : 1)

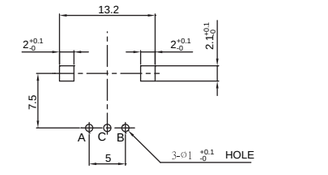


EC12PVBF-D

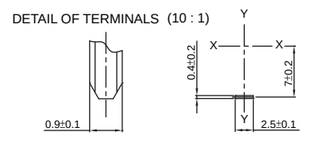


L	14.5	19.5	19.5	24.5	29.5
F	7	7	12	12	12

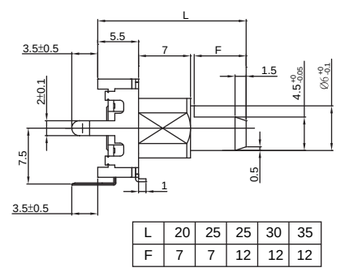




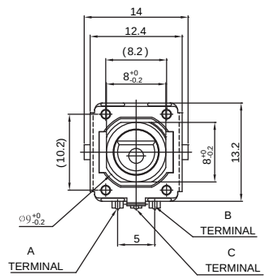
DETAIL OF TERMINALS (10 : 1)

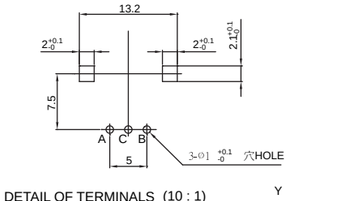


EC12PVBPF-D

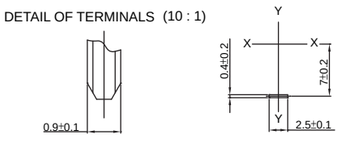


L	20	25	25	30	35
F	7	7	12	12	12





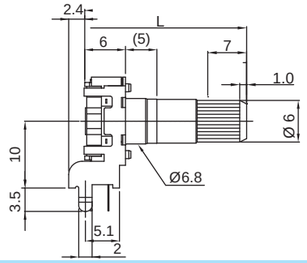
DETAIL OF TERMINALS (10 : 1)

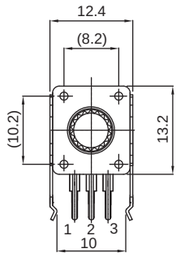


EC12PL□HF-B	EC12PL□□SDHF-B	EC12PL□VF-D	EC12PL□□SDVF-D

Outline Drawing | Features individual specifications

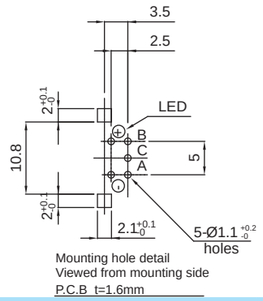
EC12PL□HF-B





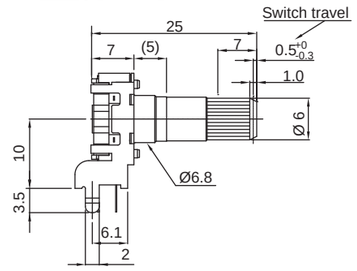
LED COLOR:

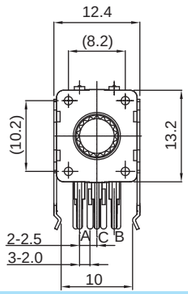
CODE	COLOR
O	ORANGE
B	BLUE
R	RED
G	GREEN
W	WHITE

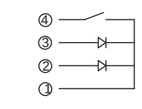


Mounting hole detail
Viewed from mounting side
P.C.B t=1.6mm

EC12PL□□SDHF-B



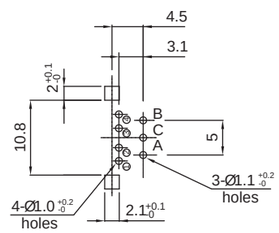




Circuit Diagram

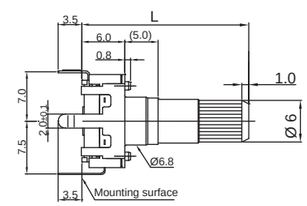
LED COLOR:

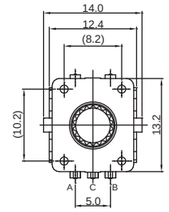
CODE	COLOR
O	ORANGE
B	BLUE
R	RED
G	GREEN
W	WHITE



Mounting hole detail
Viewed from mounting side
P.C.B t=1.6mm

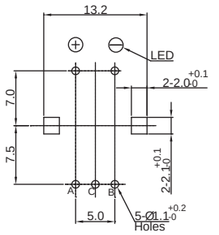
EC12PL□VF-D





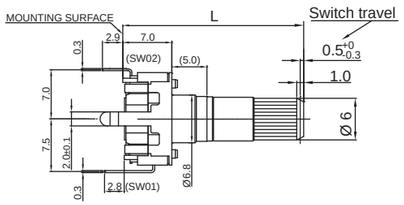
LED color:

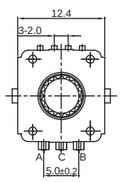
Code	Color
G	Green
B	Blue
R	Red
O	Orange
W	White



Mounting holes detail viewed
from mounting side
P.C.B t=1.6mm

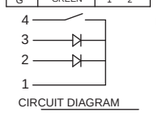
EC12PL□□SDVF-D





LED COLOR:

CODE	COLOR	TERMINAL
O	ORANGE	
B	BLUE	
R	RED	1 3
G	GREEN	1 2



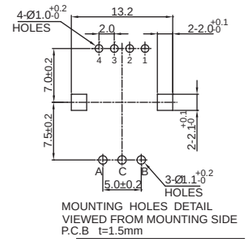
CIRCUIT DIAGRAM

LED COLOR:

CODE	COLOR	TERMINAL
O	ORANGE	1 3
B	BLUE	1 2
R	RED	
G	GREEN	

LED COLOR:

CODE	COLOR	TERMINAL
O	ORANGE	
B	BLUE	1 2
R	RED	
G	GREEN	1 3



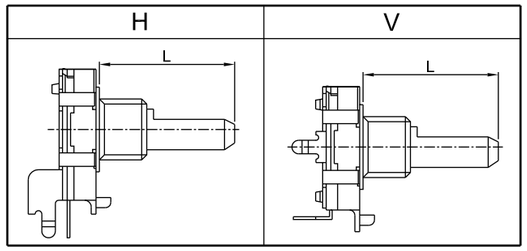
MOUNTING HOLES DETAIL
VIEWED FROM MOUNTING SIDE
P.C.B t=1.5mm

The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

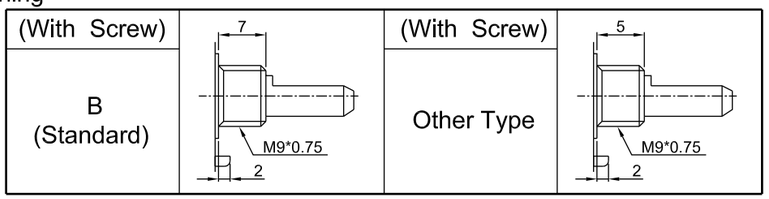
EC16P Series Code Explanation

EC16P	S	H	5	B	F	-	B	-	20	F	-	24	-	□C	-	□□□
1	2	3	4	5	6		7		8	9		10		11		12

1. Product Lines of EC16P(16mm Insulated Shaft Encoder)
2. With Switch: "S"
3. Horizontal(H) Type or Vertical (V) Type



4. Bushing Length : Keep Blank On Code if it's Standard Type With 7mm.
5. With Bushing



6. With Frame: "F"

	Horizontal	Vertical
Frame Size (Snap-in)	18.4	16.8

7. Type of Terminal

P.C.B Type			
	Horizontal		Vertical
	B		D
3.2	1	3.3	1

8. Shaft Length
9. Type of Shaft

F -Type	F, 1.5, Ø6.0, 4.5, L	L	15	20	25	
		F	7	12	12	

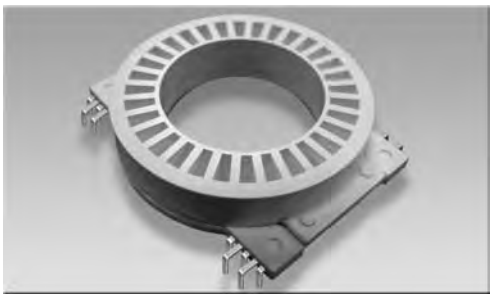
10. Output Pulse

Pulse No.	Code	24
	Pulse	24 Pulses

11. Number of Clicks : Blank-None, 1C-Center Click
12. Serial No.

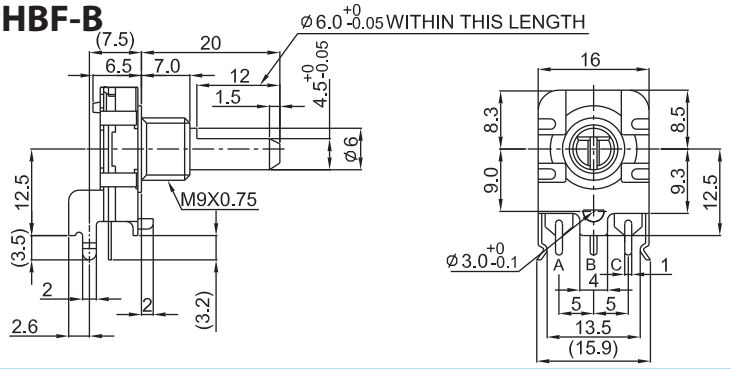
The drawing and specification are for reference only, for further detail, please contact RJS Electronics head office.

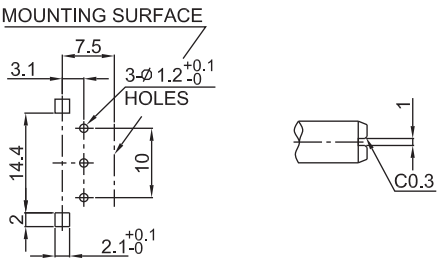
EC16PHBF-B | EC16PVBF-D | LED-CCL



Outline Drawing | Features individual specifications

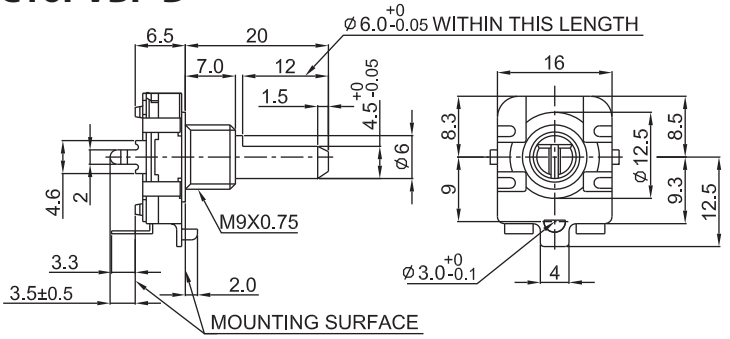
EC16PHBF-B

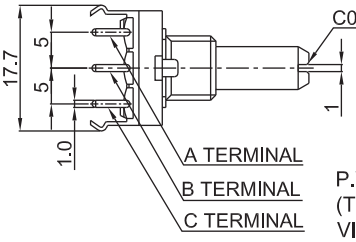


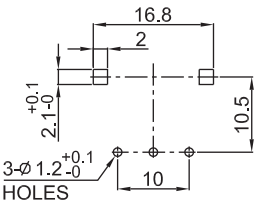


P.W.B. MOUNTING DETAIL
(TOLERANCE±0.1)
VIEWED FROM MOUNTING SIDE

EC16PVBF-D

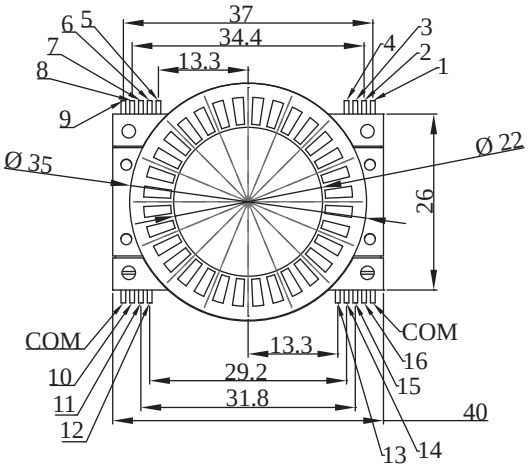


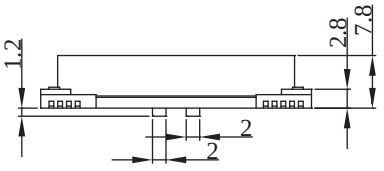


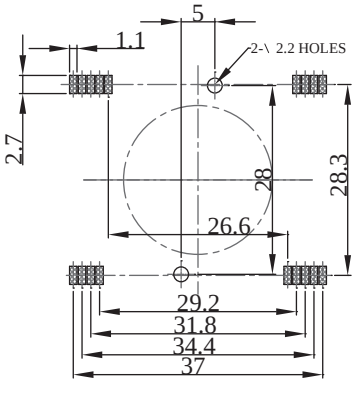


P.W.B MOUNTING DETAIL
(TOLERANCE±0.1)
VIEWED FROM MOUNTING SIDE

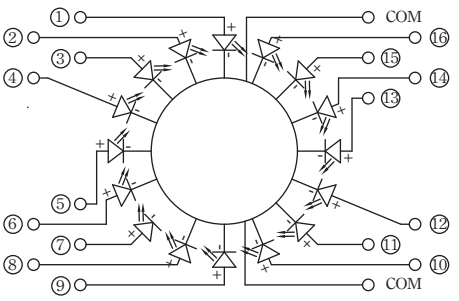
LED-CCL







WITH GUIDE DIP



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