

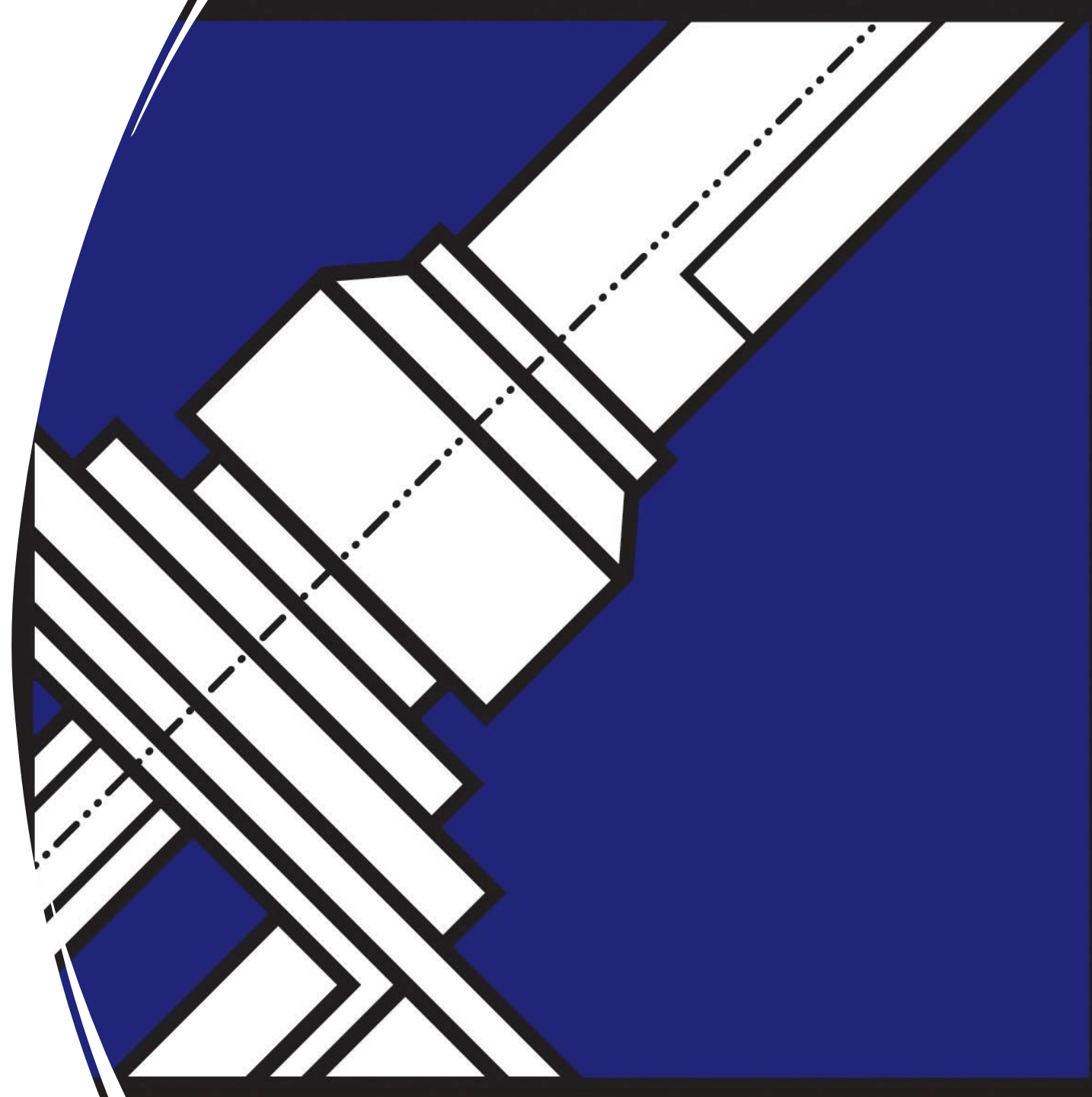
# 12 mm Encoders

Types of 12mm CP pots:

- Model DC12KG Encoder
- Model DC12S Encoder
- Model EN12 Series Encoder

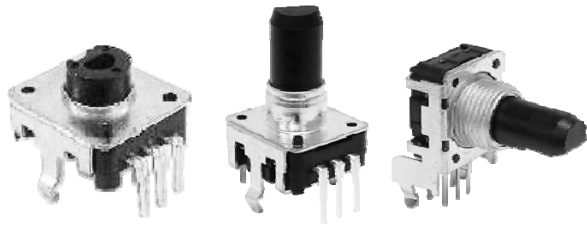
These will be further classified as :-

Top/side adjust, metal bushing/shaft, push-on switch option



# ENCODER

## 12mm Size Encoder



### ◆FEATURE

- High-precision rotary type encoder.
- Compact design, long life and high reliability.
- Low cost as compared with optical type.
- Available in a wide variety of line up to meet all user needs.

### ◆APPLICATIONS

- All kinds of level control, tuning and timer setting in audio-visual equipment, ordinary household electric appliances, radio equipment, communications equipment, etc.

### ◆ COMMON SPECIFICATIONS

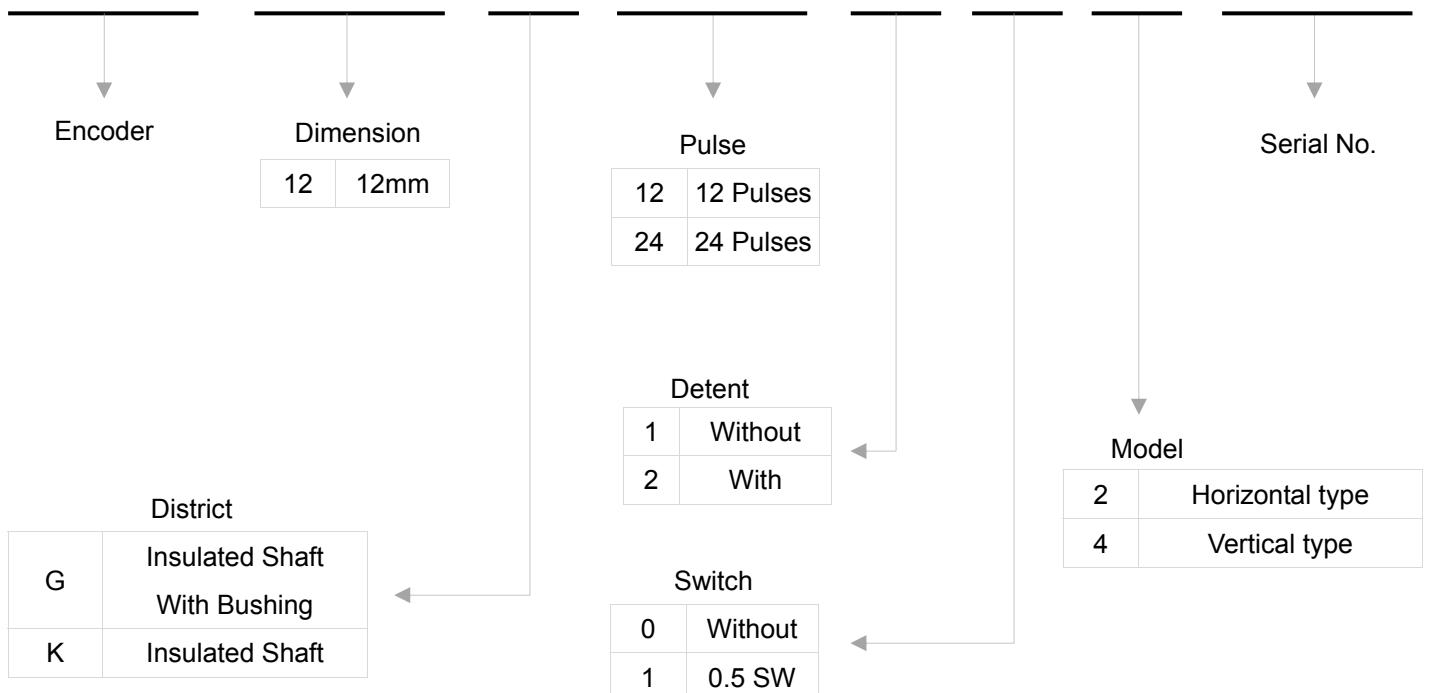
Pulse	Number of detent	Phase difference (msec)	Chattering (msec)	Sliding noise (msec)	Insulation resistance	Dielectric strength	Detent torque (gf · cm)	Rotational life (cycle)
12	0	4	3	2	250V DC 100MΩ MIN	300V AC 1 min	30~200	30,000
	12							
	24							
24	0	3.5	3	2				
	24							

### ◆ 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	100 mΩ	250V DC 100MΩ MIN	300V AC 1 min	PUSH ON	0.5	300+150/-100	20,000

### ◆ PRODUCT NUMBERING SYSTEM

D	C	1	2	K	1	2	2	1	4	0	1
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# ENCODER

## 12mm Size Encoder

### ◆ STANDARD DIMENSION OF SHAFT AND BUSHING

Without Switch		0.5mm Switch Stroke		With Bushing (Without Switch)				With Bushing (0.5mm Switch Stroke)			
LM	L2	LM	L2	LM	LB	L1	L2	LM	LB	L1	L2
17.5	5	15	3	17.5	5	12	5	15	5	8.5	3
20	7	17.5	5	20	7	14.5	7	17.5	5	11	5
25	12	20	7	25	7	19.5	12	20	5	13.5	7
30	12	25	12	30	7	24.5	12	25	5	18.5	12
-	-	30	12	-	-	-	-	30	7	23.5	12

### DIMENSION

Unit : mm

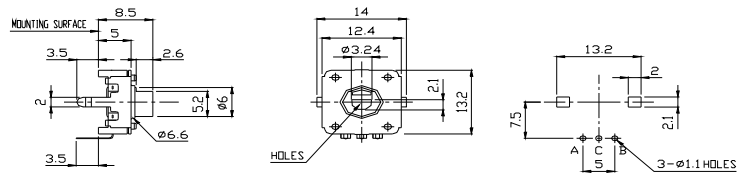
Model	Dimensions
<b>DC12K24201</b> Hollow shaft horizontal type 	
<b>DC12K24202</b> horizontal type 	
<b>DC12K24212</b> with push on switch -0.5mm horizontal type 	

# ENCODER

## 12mm Size Encoder

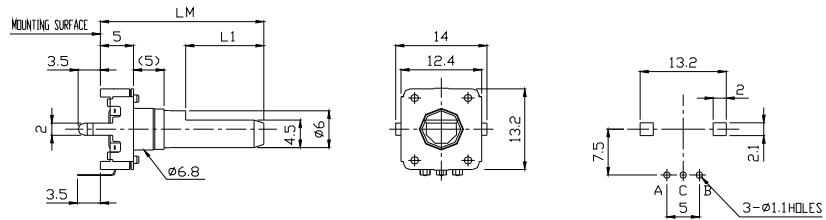
### DC12K24203

Hollow shaft  
vertical type



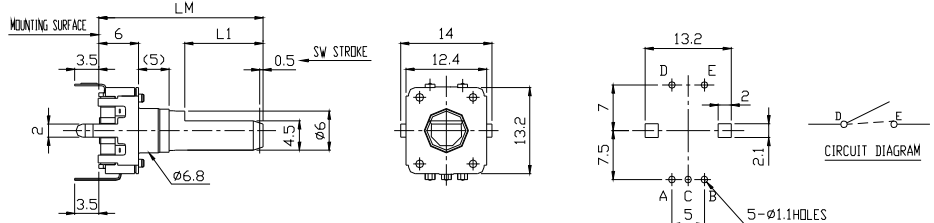
### DC12K24204

vertical type



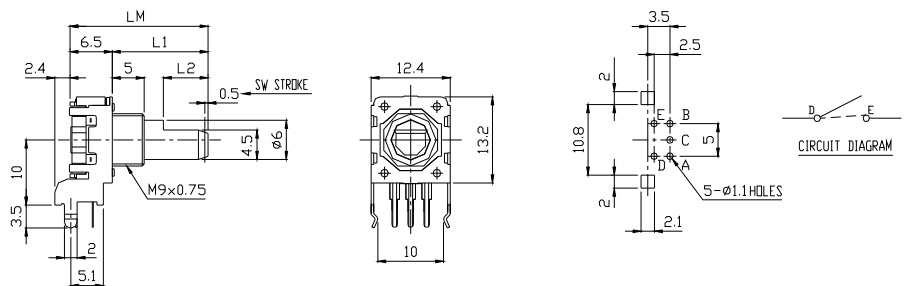
### DC12K24214

with push on switch -0.5sw  
vertical type



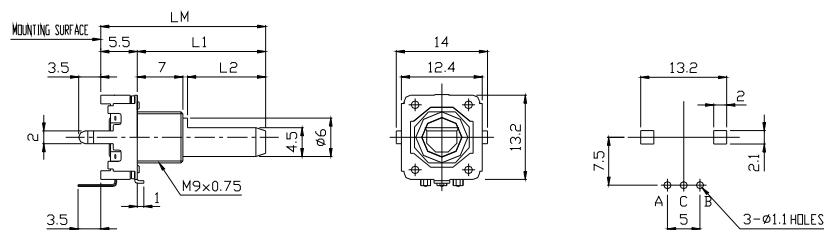
### DC12G24212

horizontal type



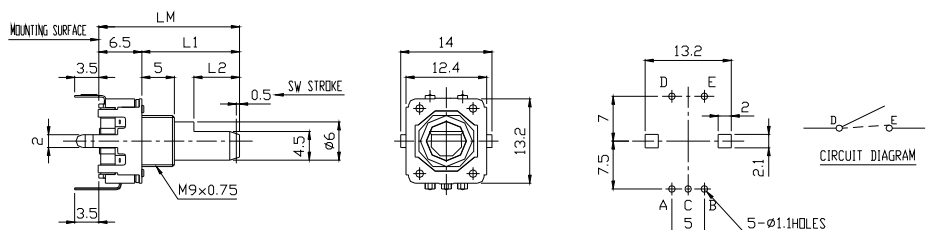
### DC12G24204

vertical type



### DC12G24214

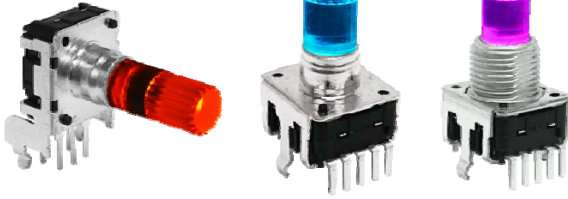
vertical type



# ENCODER

## 12mm Size Encoder With LED

**NEW**



### ◆FEATURE

- High-precision rotary type encoder.
- Compact design, long life and high reliability.
- High brightness for working in darkness.

### ◆APPLICATIONS

- All kinds of level control, tuning and timer setting in audio-visual equipment, ordinary household electric appliances, radio equipment, communications equipment, etc.

### ◆ 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	0	4	3	2	250V DC 100MΩ MIN	300V AC 1 min	30~200	30,000
	12							
	24							
24	0	3.5	3	2				
	24							

### ◆ 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	100 mΩ	250V DC 100MΩ MIN	300V AC 1 min	PUSH ON	0.5 +0/-0.3	450±200	20,000

### ◆LED SPECIFICATIONS

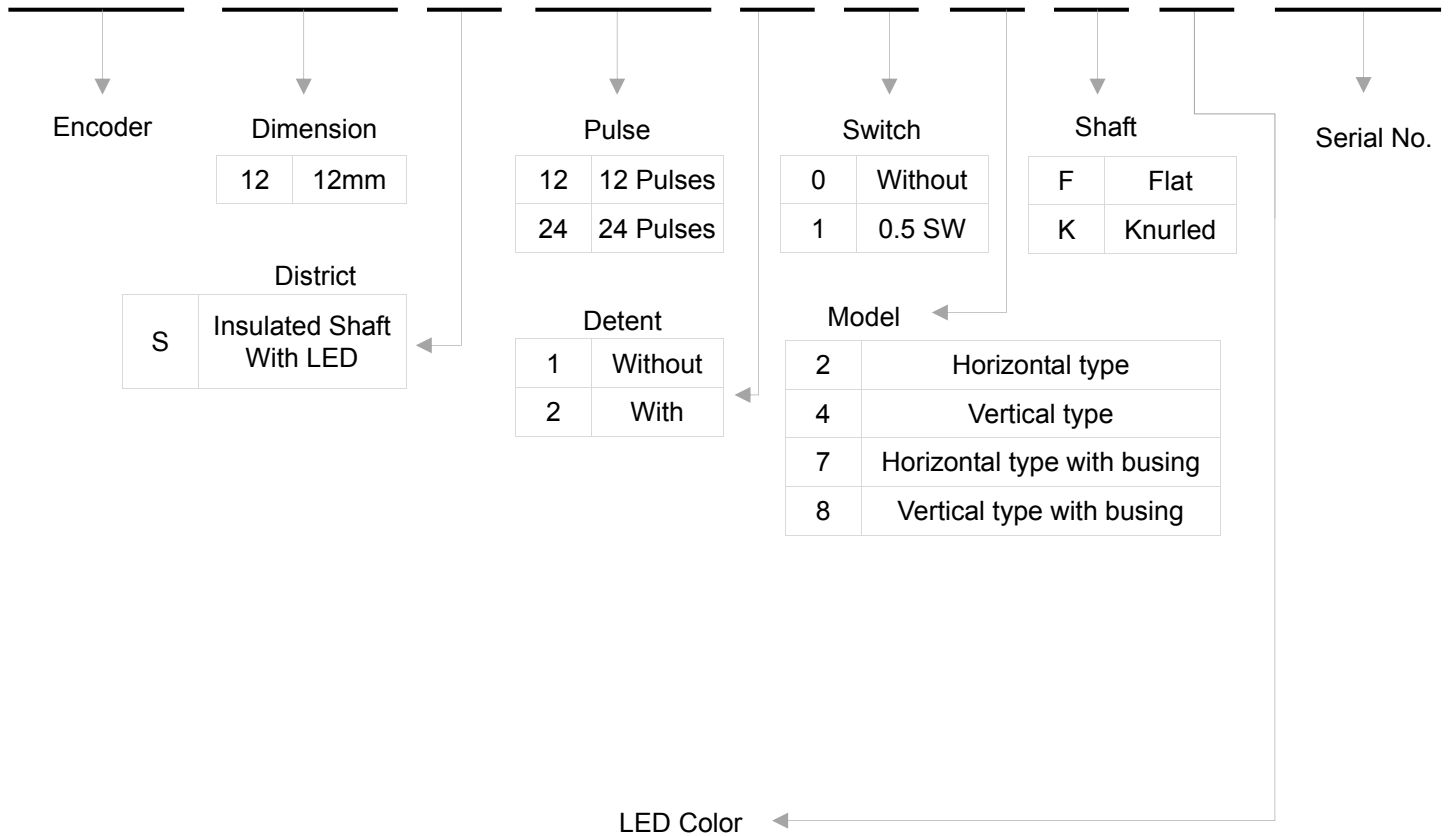
Emitted color		
Single color LED	Two colors LED	Three colors LED
Red	Blue / Orange	Red / Green / Blue
Lawngreen	Green / Red	
Blue	Blue / Green	
Orange	Red / Green	
White	Green / Orange	
Green	Blue / Red	
Darkorange	White / Red	
	White / Green	

# ENCODER

## 12mm Size Encoder With LED

### ◆ PRODUCT NUMBERING SYSTEM

D	C	1	2	S	2	4	2	1	4	K	A	0	1
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LED Color

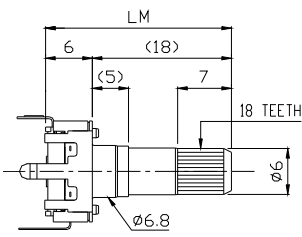
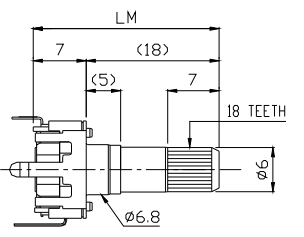
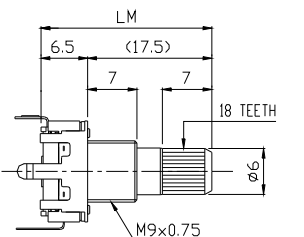
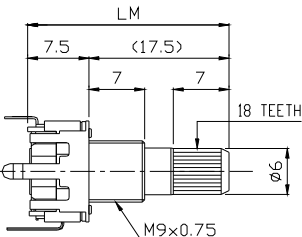
Single Color		Two Colors		Three Colors	
0	Red	A	Blue / Orange	M	Red / Green / Blue
1	Lawn green	B	Green / Red		
2	Blue	C	Blue / Green		
3	Orange	D	Red / Green		
4	White	E	Green / Orange		
5	Green	F	Blue / Red		
6	Dark orange	I	White/ Red		
		J	White/ Green		

# ENCODER

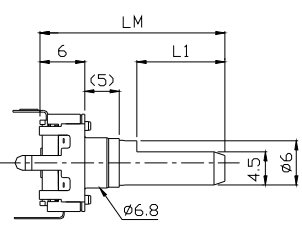
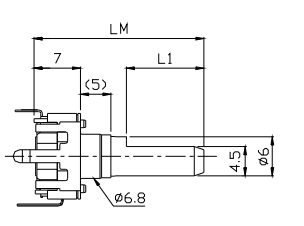
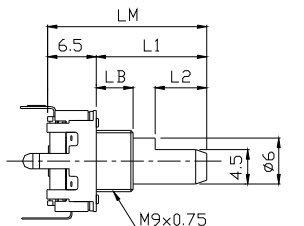
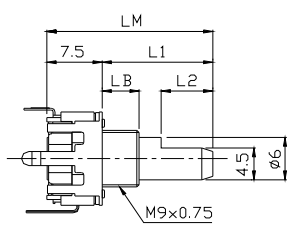
## 12mm Size Encoder With LED

### ◆ STANDARD DIMENSION OF SHAFT AND BUSHING

#### Knurled Type

With single colors LED	With two colors of LED & 0.5mm Switch Stroke With three colors of LED & 0.5mm Switch Stroke	With Bushing (With single colors LED)	With Bushing (With two colors of LED & 0.5mm Switch Stroke) (With two colors of LED & 0.5mm Switch Stroke)
			
LM	LM	LM	LM
24	25	24	25

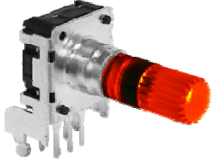
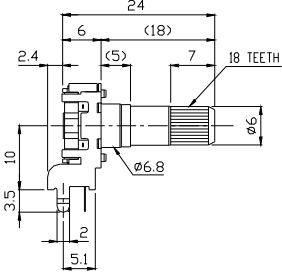
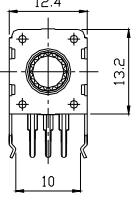
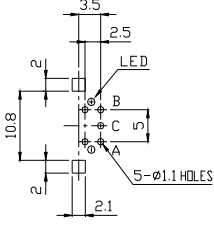

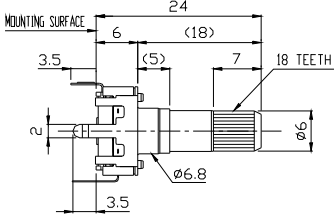
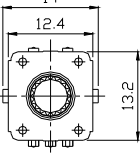
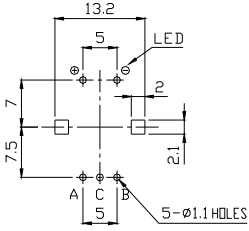
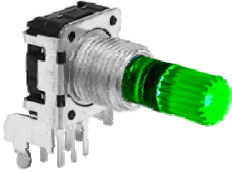
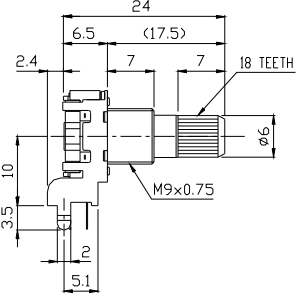
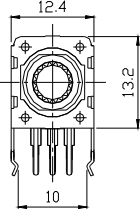
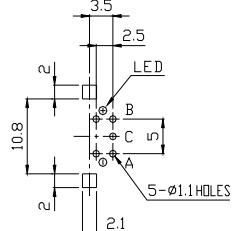

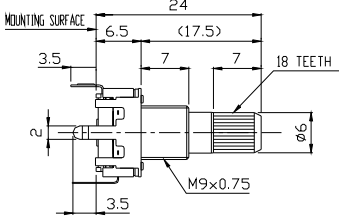
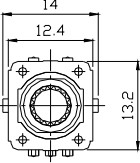
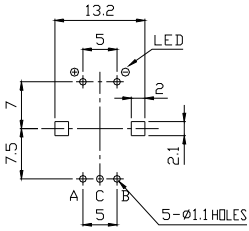
#### Flat Type

With single colors LED	With two colors of LED & 0.5mm Switch Stroke With three colors of LED & 0.5mm Switch Stroke	With Bushing (With single colors LED)	With Bushing (With two colors of LED & 0.5mm Switch Stroke) (With two colors of LED & 0.5mm Switch Stroke)
			
LM	LM	LM	LM
L1	L1	LB	LB
L1	L1	L1	L1
L1	L1	L2	L2
15	16	15	16
17.5	18.5	17.5	18.5
20	21	20	21
25	26	25	26
30	31	30	31

# ENCODER

## 12mm Size Encoder With LED

DIMENSION Unit : mm

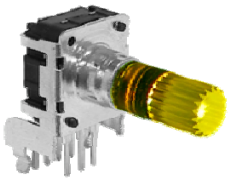
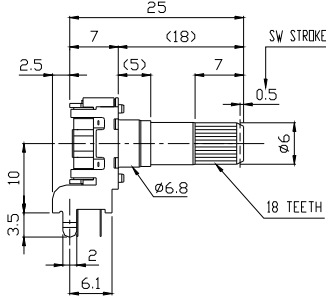
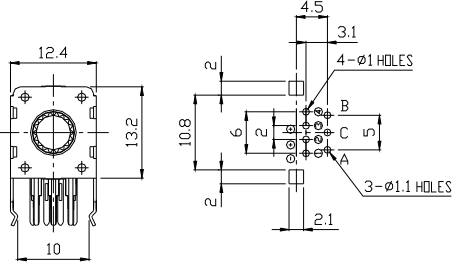
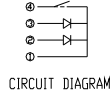

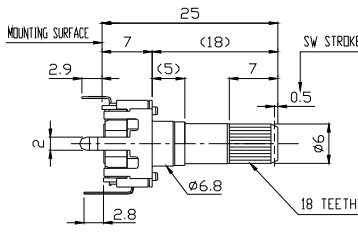
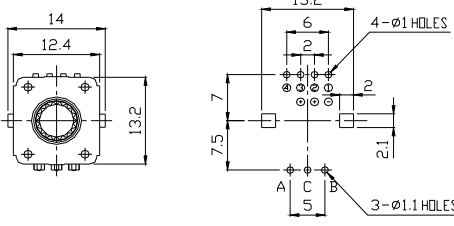
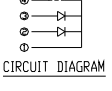
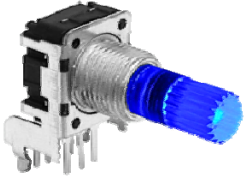
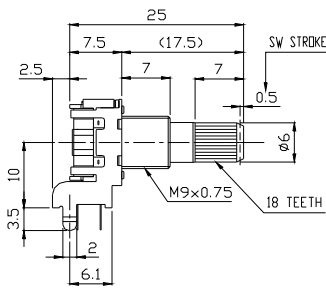
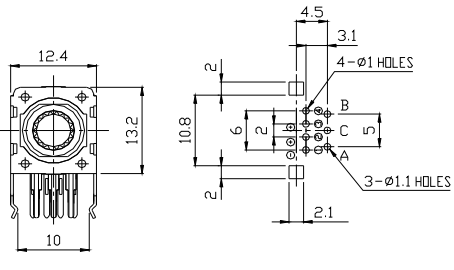
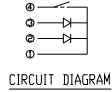

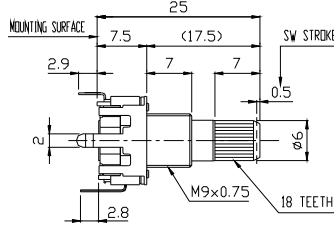
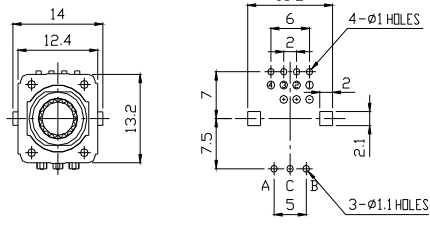
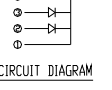
Model	Dimensions		
<p><b>DC12S24202</b> with single LED horizontal type</p> 			
<p><b>DC12S24204</b> with single LED vertical type</p> 			
<p><b>DC12S24207</b> with single LED &amp; with bushing horizontal type</p> 			
<p><b>DC12S24208</b> with single LED &amp; with bushing vertical type</p> 			



# ENCODER

## 12mm Size Encoder With LED

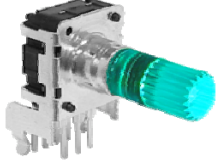
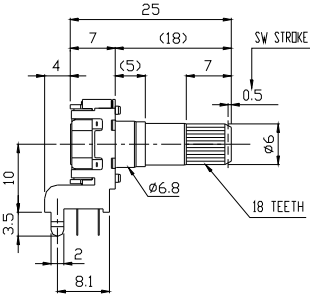
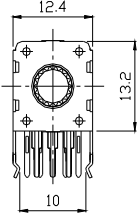
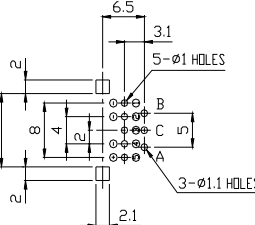
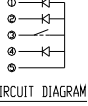

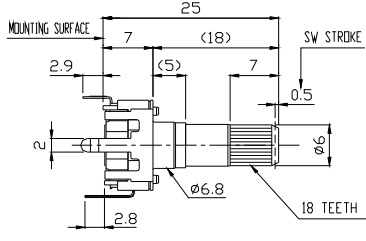
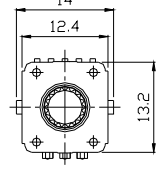
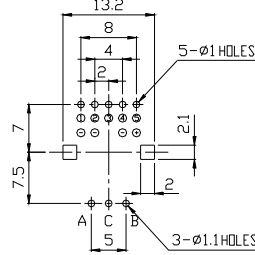
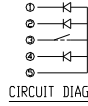
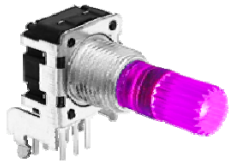
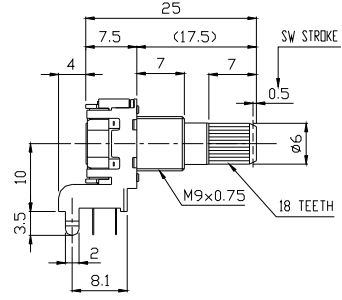
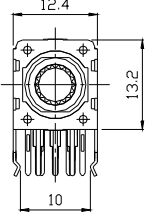
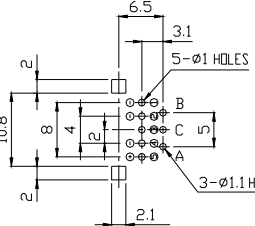
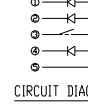

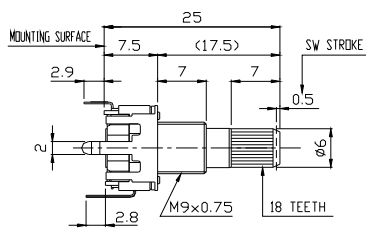
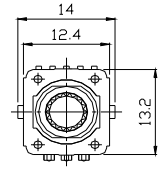
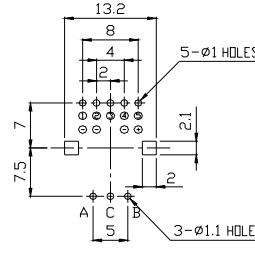
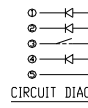
DIMENSION Unit : mm

Model	Dimensions		
<p><b>DC12S24212</b> With two colors of LED &amp; push on switch -0.5sw horizontal type</p> 			 <p>CIRCUIT DIAGRAM</p>
<p><b>DC12S24214</b> With two colors of LED &amp; push on switch -0.5sw vertical type</p> 			 <p>CIRCUIT DIAGRAM</p>
<p><b>DC12S24217</b> With two colors of LED &amp; push on switch -0.5sw &amp; with bushing horizontal type</p> 			 <p>CIRCUIT DIAGRAM</p>
<p><b>DC12S24218</b> With two colors of LED &amp; push on switch -0.5sw &amp; with bushing vertical type</p> 			 <p>CIRCUIT DIAGRAM</p>

# ENCODER

## 12mm Size Encoder With LED

DIMENSION Unit : mm

Model	Dimensions			
<p><b>DC12S24212KM</b> With three colors of LED &amp; push on switch -0.5sw horizontal type</p> 				 <p>CIRCUIT DIAGRAM</p>
<p><b>DC12S24214KM</b> With three colors of LED &amp; push on switch -0.5sw vertical type</p> 				 <p>CIRCUIT DIAGRAM</p>
<p><b>DC12S24217KM</b> With three colors of LED &amp; push on switch -0.5sw &amp; with bushing horizontal type</p> 				 <p>CIRCUIT DIAGRAM</p>
<p><b>DC12S24218KM</b> With three colors of LED &amp; push on switch -0.5sw &amp; with bushing vertical type</p> 				 <p>CIRCUIT DIAGRAM</p>

# Rotary Encoder

## Model EN12 Series



### Features:

- 12 mm
- 2 bits gray code
- Incremental/contacting type
- Metal bushing/shaft
- Push-on switch option



### Model Styles Available

Top Adjust, with Switch	EN12-HS
Top Adjust, without Switch	EN12-HN
Side Adjust, with Switch	EN12-VS
Side Adjust, without Switch	EN12-VN

### Electrical

Pulses ( Per Revolution )	12 & 24
Closed Circuit Resistance, Ohms	3 Ohms, max.
Contact Rating	1mA/ 5Vdc
Operating Current, Maximum	1mA
Dielectric Strength	300Vac/ 1mA, 1 minute
Insulation Resistance, Minimum	100M ohms at 250Vdc/ 1mA
Sliding Noise ( at 60 RPM )	2.0ms max.
Contact Bounce ( at 15 RPM)	5.0ms max.
Operating Speed ( RPM )	100 RPM max.
Switch Power Rating	10mA/ 5Vdc
Switch Contact Resistance	100 milliohms
Actual Electrical Travel, Nominal	Continuous

### Mechanical

Total Mechanical Travel	Continuous
Detents (per Revolution)	0, 12, 24
Rotational Torque of Detent, Maximum	1.4 oz-in
Switch Operating Force	550 gf
Switch Travel	0.5mm

#### General Note

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TT Electronics | BI Technologies  
4200 Bonita Place, Fullerton, CA USA 92835 | Ph: +1 714 447 2345  
www.ttelectronics.com | sensors@ttelectronics.com

# Rotary Encoder

## Model EN12 Series

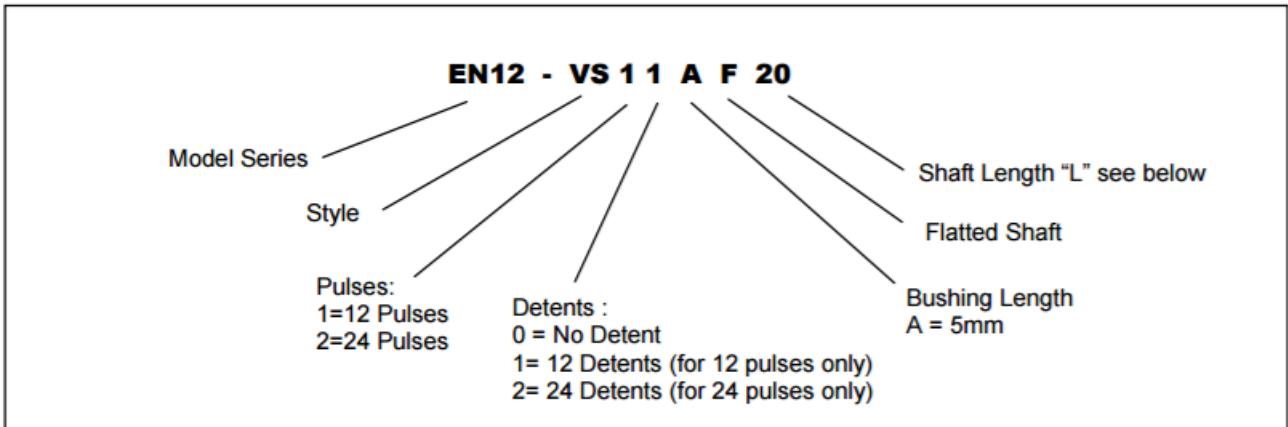


### Environmental

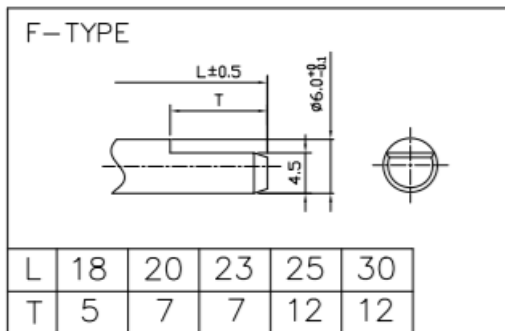
Rotational Life

30,000 cycles

### Ordering



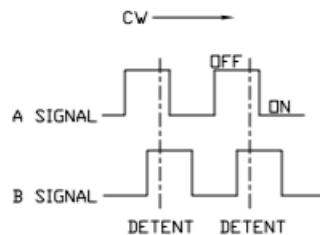
### Shaft Length Options



**18 Length = 17.5mm**

**23 Length = 22.5mm**

### Circuit Diagram



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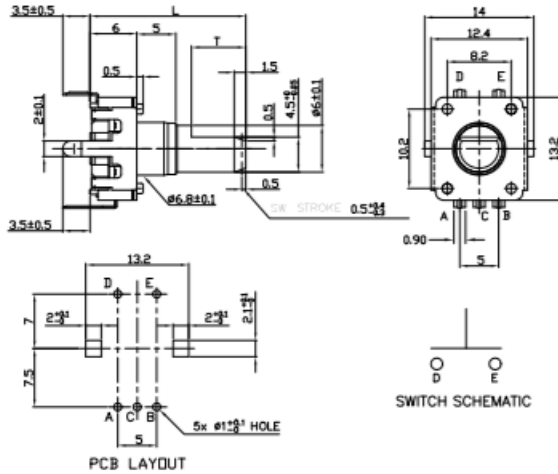
# Rotary Encoder

## Model EN12 Series

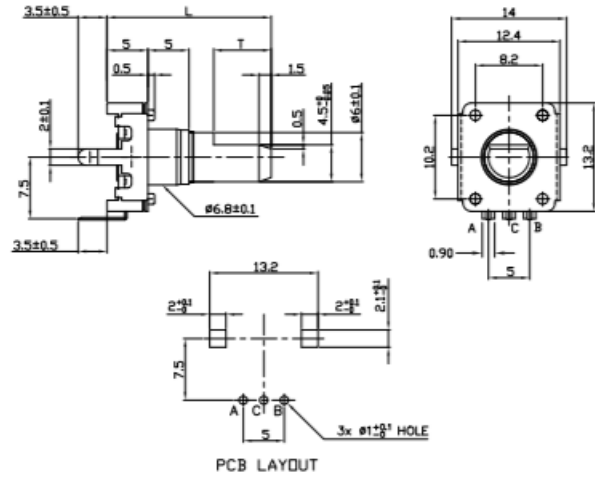


### Outline Drawings

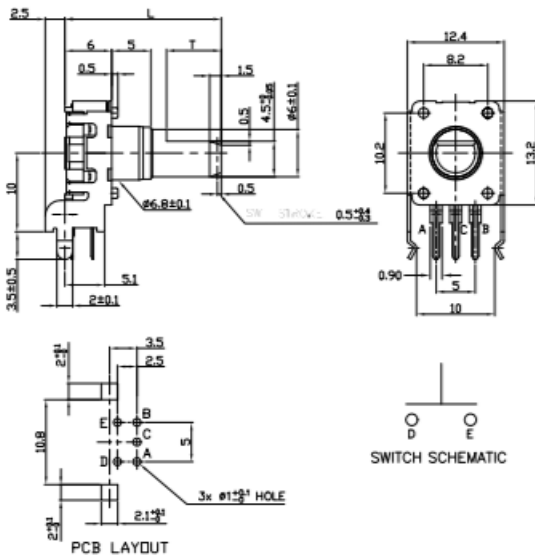
EN12-HS (Top Adjust, with Switch)



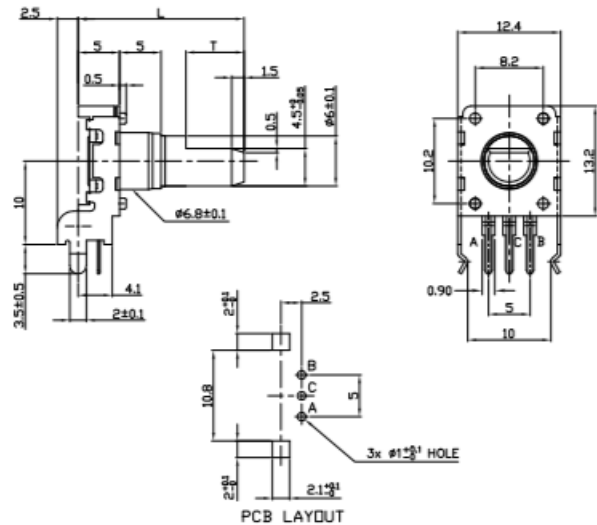
EN12-HN (Top Adjust, without Switch)



EN12-VS (Side Adjust, with Switch)



EN12-VN (Side Adjust, without Switch)



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