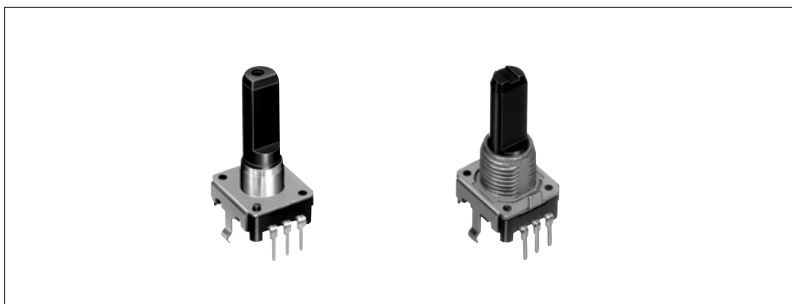


12mm Size Insulated Shaft Type Encoder Variety

EC12E Series

Insulated shaft type with a push-on switch and other features has a wide variety of applications.

- Power
- Push
- Slide
- Rotary
- Encoders
- Detector
- Dual-in-line Package Type
- Multi Control Devices
- TACT
- Custom-Products



Features

- A 12mm sized unit achieved high resolution, 12 pulse/12 detent and 24 pulse/24 detent.
- Used a new structure for the shaft and bushing, and achieved a high precision, responsive system.
- Also available with a 0.5 mm push switch.
- Incremental type.

Applications

- Controls for image and sound devices, including DVD players, mini component stereos, CD players, portable audio players and monitors
- Controls for audio mixers and electronic instruments

Typical Specifications

Items	Specifications	
Rating	0.5mA 5V DC	
Operating life	Without detent	15,000 cycles
	Other	30,000 cycles

Products Line

With High Collar Type

Length of operating section (mm)	Detent torque (mN·m)	Number of detent	Resolution	Operating direction	Operating force of switch (N)	Travel of push-on switch (mm)	Minimum packing unit (pcs.)	Products No.	Drawing No.
15	Standard 3 to 20	12	12	Vertical	—	—	1,200	EC12E1220407	2
20								EC12E1220406	1
25								EC12E1220405	
8.5 (Hollow shaft)	Lightest (jog) 3±2							EC12E1220301	3
20								EC12E1240405	1
25								EC12E1240406	
8.5 (Hollow shaft)	Standard 3 to 20	24	24					EC12E1240301	3
15								EC12E24204A2	2
17.5								EC12E24204A7	1
20	EC12E24204A8								
25	EC12E24204A9								
8.5 (Hollow shaft)	Lightest (jog) 3±2							EC12E2420301	3
20		EC12E24404A8	1						
25		EC12E24404A6							
8.5 (Hollow shaft)	Lightest (jog) 10 max.	Without	EC12E2440301	3					
20			EC12E24104A6	1					
20			EC12E2430404						
25	Standard 25±15	EC12E2430401							

Products Line

With Bushing Type

Length of operating section (mm)	Detent torque (mN·m)	Number of detent	Resolution	Operating direction	Operating force of switch (N)	Travel of push-on switch (mm)	Minimum packing unit (pcs.)	Products No.	Drawing No.
25	Standard 3 to 20	12	12	Vertical	—	—	950	EC12E1220813	4
20		24	24					EC12E2420802	
25								EC12E2420801	
30								EC12E2420803	
20	Standard 25±15	Without	24	EC12E2430804					
25				EC12E2430803					
30				EC12E2460802					
30	Heavy 40±15								

With Switch Type

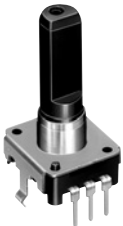
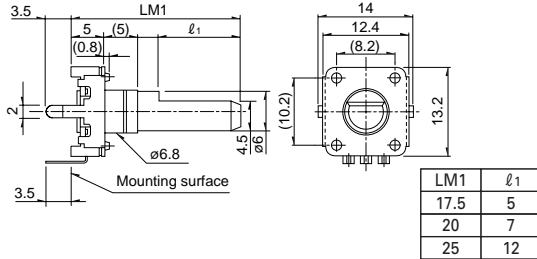
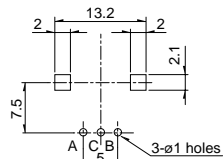

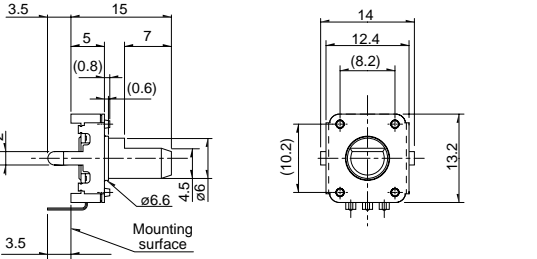
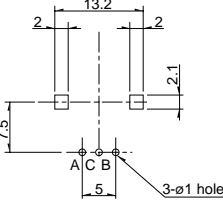
Length of operating section (mm)	Detent torque (mN·m)	Number of detent	Resolution	Operating direction	Operating force of switch (N)	Travel of push-on switch (mm)	Minimum packing unit (pcs.)	Products No.	Drawing No.
20	Standard 3 to 20	24	24	Vertical	6	0.5	1,200	EC12E24244A3	5
20					EC12E2424407				
25					EC12E2424404				
30					EC12E24244A4				
17.5	Lightest (jog) 3±2				3			EC12E2444A2	
20					EC12E244400				
25					EC12E2444A3				

Note

No nuts or washers attached. If necessary, contact us.

Dimensions

Unit:mm

No.	Model	Style	PC board mounting hole dimensions (Viewed from mounting face)								
1		 <table border="1"> <tr> <td>LM1</td> <td>l1</td> </tr> <tr> <td>17.5</td> <td>5</td> </tr> <tr> <td>20</td> <td>7</td> </tr> <tr> <td>25</td> <td>12</td> </tr> </table>	LM1	l1	17.5	5	20	7	25	12	
LM1	l1										
17.5	5										
20	7										
25	12										
2	Short shaft 										

For other products, check varieties on P.193
For other detailed specifications, see P.194

Power

Push

Slide

Rotary

Encoders

Detector

Dual-in-line
Package Type

Multi Control
Devices

TACT

Custom-
Products

Incremental
Type

Absolute
Type

Dimensions

Unit:mm

No.	Model	Style	PC board mounting hole dimensions (Viewed from mounting face)												
3	Hollow shaft														
4	With bushing	<table border="1"> <thead> <tr> <th>LM1</th> <th>L_b</th> <th>l₁</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>7</td> <td>7</td> </tr> <tr> <td>25</td> <td>7</td> <td>12</td> </tr> <tr> <td>30</td> <td>12</td> <td>12</td> </tr> </tbody> </table>	LM1	L _b	l ₁	20	7	7	25	7	12	30	12	12	
LM1	L _b	l ₁													
20	7	7													
25	7	12													
30	12	12													
5	With push-on switch	<table border="1"> <thead> <tr> <th>LM1</th> <th>l₁</th> </tr> </thead> <tbody> <tr> <td>17.5</td> <td>5</td> </tr> <tr> <td>20</td> <td>7</td> </tr> <tr> <td>25</td> <td>12</td> </tr> <tr> <td>30</td> <td>12</td> </tr> </tbody> </table>	LM1	l ₁	17.5	5	20	7	25	12	30	12			
LM1	l ₁														
17.5	5														
20	7														
25	12														
30	12														

- Power
- Push
- Slide
- Rotary
- Encoders**
- Detector
- Dual-in-line Package Type
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- Absolute Type

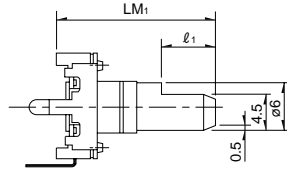
Variety

Shaft Dimensions

Flat Type

Unit:mm

With high collar type

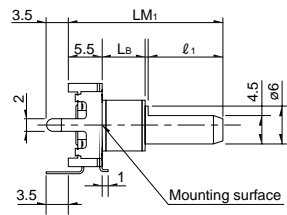


Vertical type

Detail dimensions

LM ₁	l ₁
17.5	5
20	7
22.5	7
25	12
30	12

With bushing type



Mounting surface

Detail dimensions

LM ₁	L _B	l ₁
20	7	7
25	7	12
30	12	12
35	12	12

Except 12 detent.

Power

Push

Slide

Rotary

Encoders

Detector

Dual-in-line
Package Type

Multi Control
Devices

TACT

Custom-
Products

Incremental
Type

Absolute
Type

Products Specifications

Items	12mm size insulated shaft encoders		
	Standard detent	Without detent	With switch
Operating temperature range	-10°C to +60°C		
Maximum operating current (Resistive load)	5mA		
Rating	0.5mA 5V DC		
Output signal	Output of A and B signals, proportionate to phase difference		
Output wave			
Sliding noise	<p>$V_1=V_2=1.5V$ max.</p> <p>Measurement condition : Rotation speed 360°/s t : Masking time to avoid chattering</p>		
Insulation resistance	At R = 10kΩ Chattering : 3ms max. Bounce : 2ms max.		
Voltage proof	10MΩ min. 50V DC		
Voltage proof	50V AC		
Rotational torque	—		25±15mN·m, 10mN·m max., 40±15mN·m
	3±2mN·m, 3 to 20mN·m		—
	80N		50N
	300°C or less, or within 3s		
Resistance to soldering heat	Manual soldering	300°C or less, or within 3s	
	Dip soldering	260°C±5°C, 3±1s	
	Reflow soldering	—	
Rotational life	30,000 cycles	15,000 cycles	30,000 cycles
Environmental performance	Cold	-40±3°C for 240h	
	Dry heat	85±3°C for 240h	
	Damp heat	40±2°C, 90 to 95%RH for 240h	

Push-on Switch Specifications

Items	12mm size insulated shaft encoders
Switch circuit · the number of contact	Single pole and single throw (Push-on)
Travel of switch	0.5 ^{+0.4} _{-0.3} mm
Operating force of switch	3 ^{+1.5} _{-1.0} N or 6±3N
Rating	1mA 5V DC
Contact resistance	100mΩ for initial period; 200mΩ after rotational life
Operating life	20,000 times min.