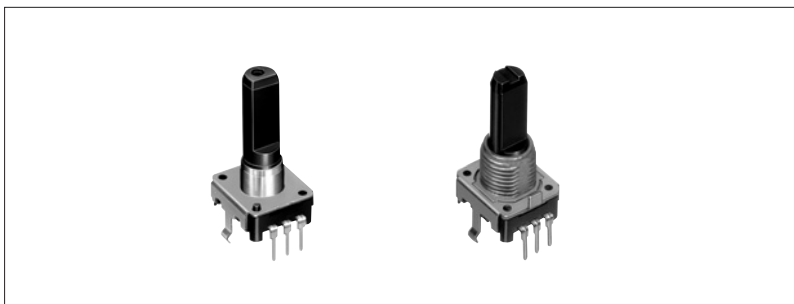


12mm Size Insulated Shaft Type Encoder Variety

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)								EC12E1220301	3
20	Lightest (jog) 3±2	24	24					EC12E1240405	1
25								EC12E1240406	
8.5 (Hollow shaft)								EC12E1240301	3
15								Standard 3 to 20	24
17.5	EC12E24204A7	1							
20	EC12E24204A8								
25	EC12E24204A9								
8.5 (Hollow shaft)	EC12E2420301	3							
20	Lightest (jog) 3±2	Without	24	EC12E24404A8	1				
25				EC12E24404A6					
8.5 (Hollow shaft)				EC12E2440301	3				
20	Lightest (jog) 10 max.	Without	24	EC12E24104A6	1				
20	Standard 25±15			EC12E2430404					
25	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	Vertical	—	—	950	EC12E2430804	4
25								EC12E2430803	
30								EC12E2460802	
30	Heavy 40±15								

With Switch Type

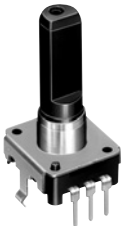
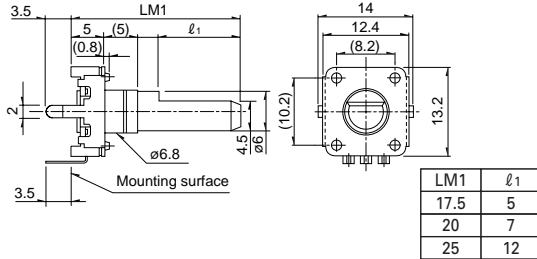
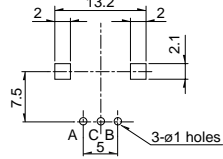

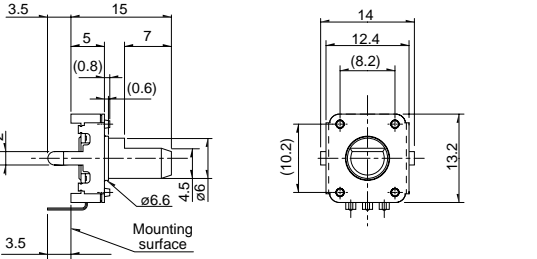
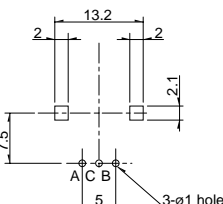
Length of operating section (mm)	Detent torque (mN·m)	Number of detent	Resolution	Operating direction	Operating force of switch (N)	Travel of push-on switch (mm)	Minimum packing unit (pcs.)	Products No.	Drawing No.
20	Standard 3 to 20	24	24	Vertical	6	0.5	1,200	EC12E24244A3	5
20					3			EC12E2424407	
25								EC12E2424404	
30					EC12E24244A4				
17.5	Lightest (jog) 3±2			Vertical	3	0.5	1,200	EC12E2444A2	5
20								EC12E2444400	
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" data-bbox="973 1400 1093 1489"> <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 										

Power

Push

Slide

Rotary

Encoders

Detector

Dual-in-line Package Type

Multi Control Devices

TACT

Custom-Products

Incremental Type

Absolute Type

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

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
- Multi Control Devices
- TACT
- Custom-Products
- Incremental Type
- Absolute Type

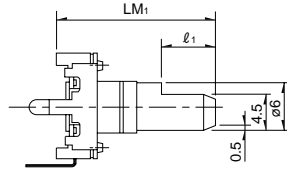
Variety

Shaft Dimensions

Flat Type

Unit:mm

With high collar type

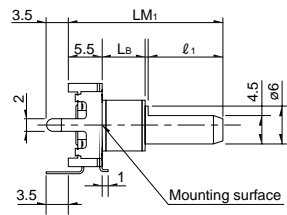


Vertical type

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	10MΩ min. 50V DC		
Voltage proof	50V AC		
Rotational torque	—	25±15mN·m, 10mN·m max., 40±15mN·m	—
Detent torque	3±2mN·m, 3 to 20mN·m	—	3±2mN·m, 3 to 20mN·m
Push-pull strength	80N		50N
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.