

Encoder 12mm Size Insulated Shaft Type

EC12 Series



Insulated shaft type has a wide variety of applications.

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line
Package Type

Multi Control
Devices

TACT Switch™

Custom-
Products

Incremental
Type

Absolute
Type



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.
- Incremental type.
- New circular shape with a push switch for added variety. (15 pulse/30 detent) EC12D type.

Applications

- Controls for image / sound devices, including DVD players, mini component stereos, CD players, portable audio players and monitors
- Controls for audio mixers and electronic instruments
- New type (EC12D) with push switch for volume control of car audio and navigation systems.

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	EC12E1240301	3						
15		EC12E24204A2	2						
17.5		EC12E24204A7	1						
20	EC12E24204A8								
25	EC12E24204A9	3							
8.5 (Hollow shaft)	EC12E2420301								
20	Lightest (jog) 3±2	24	EC12E24404A8					1	
25			EC12E24404A6						
8.5 (Hollow shaft)			EC12E2440301					3	
20	Lightest (jog) 10 max.		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	EC12E2420802						
25			EC12E2420801						
30			EC12E2420803						
20	Standard 25±15	Without	EC12E2430804						
25			EC12E2430803						
30			EC12E2460802						
	Heavy 40±15								

With Switch Type


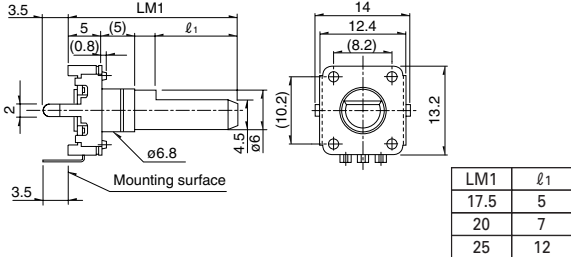
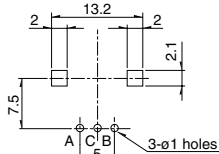

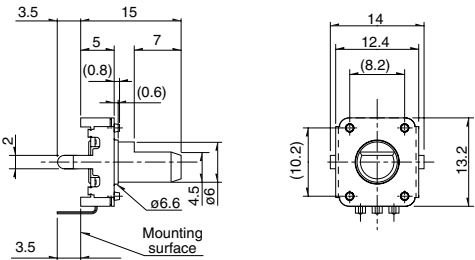
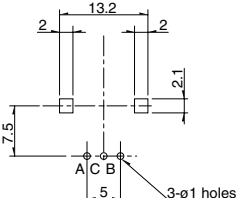
Length of operating section (mm)	Detent torque (mN·m)	Number of detent	Resolution	Operating direction	Operating force of switch (N)	Travel of push-on switch (mm)	Minimum packing unit (pcs.)	Products No.	Drawing No.
17.5	5±3	30	15	Vertical	3	0.5	1,200	EC12D1524401	5
	10±5							EC12D1564401	

Note

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

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting face)								
1		<div><table><tr><th>LM1</th><th>l1</th></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></div>	LM1	l1	17.5	5	20	7	25	12	
LM1	l1										
17.5	5										
20	7										
25	12										
2	Short shaft 	<div></div>									

For other products, check varieties on P.197
For other specifications, see P.198

Detector

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TACT Switch™

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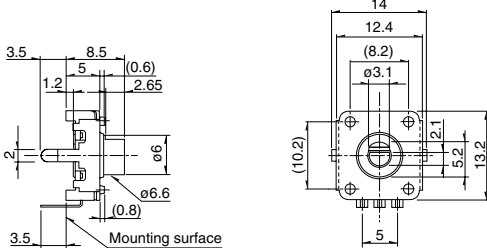
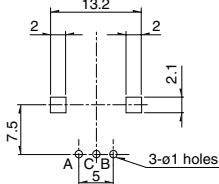

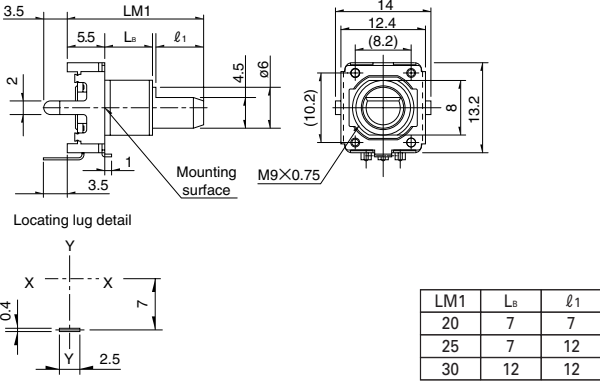
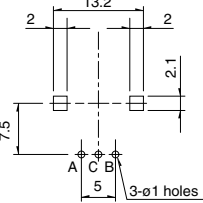

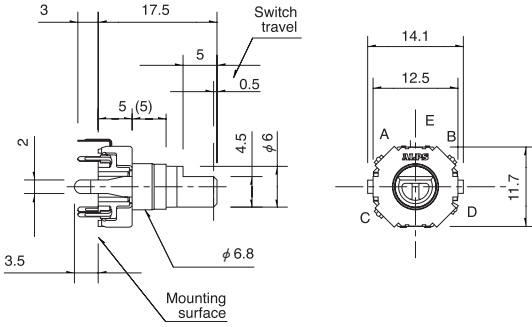
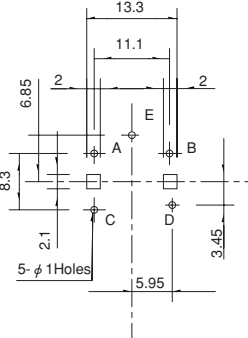
Absolute
Type

Encoder

12mm Size Insulated Shaft Type | EC12 Series

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
3	<div>Hollow shaft</div> 		
4	<div>With bushing</div> 		
5	<div>With switch type</div> 		

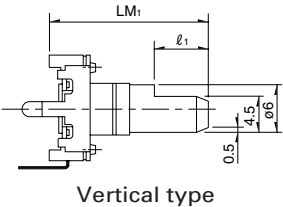
Variety

Shaft Dimensions

Flat Type

Unit:mm

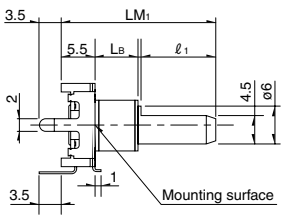
With high collar type



Detail dimensions

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

With bushing type



Detail dimensions

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

Except 12 detent.

Detector

Push

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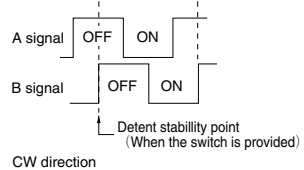
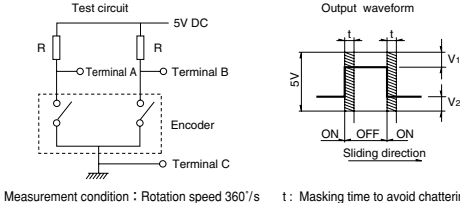
TACT Switch™

Custom-
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Products Specifications

Items	EC12E		EC12D
	Standard detent	Without detent	With switch
Operating temperature range	-40°C to +70°C		
Maximum operating current (Resistive load)	5mA		
Electrical performance	Rating	0.5mA 5V DC	
	Output signal	Output of A and B signals, proportionate to phase difference	
	Output wave		
	Sliding noise	$V_1=V_2=1.5V$ max. 	
	Insulation resistance	10MΩ min. 250V DC	
	Voltage proof	300V AC 1min, or 360V AC 1sec.	
Mechanical performance	Rotational torque	—	25±15mN·m, 10mN·m max., 40±15mN·m
	Detent torque	3±2mN·m, 3 to 20mN·m	—
	Push-pull strength	80N	100N
	Resistance to soldering heat	Manual soldering	350°C or less, or within 3s
		Dip soldering	260°C±5°C, 3±1s
		Reflow soldering	—
Durability	Rotational life	30,000 cycles	15,000 cycles
Environmental performance	Cold	-40±3°C for 240h±10h	
	Dry heat	85±3°C for 240h±10h	
	Damp heat	60±2°C, 90 to 95%RH for 240h±10h	

Push-on Switch Specifications

Items	EC12D
Switch circuit · the number of contact	Single pole and single throw (Push-on)
Travel of switch	0.5±0.3mm
Operating force of switch	3 ^{+1.5} _{-1.0} N
Rating	1mA 5V DC
Contact resistance	100mΩ max.
Operating life	30,000 times min.