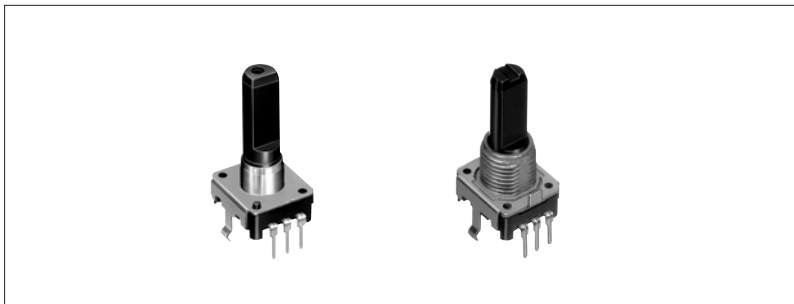


12mm Size Insulated Shaft Type Encoder Variety

EC12E Series

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

- Power
- Push
- Slide
- Rotary
- Encoders**
- Jog Shuttle
- Telephone-hook
- Detector
- Vibration Sensors
- Dual-in-line Package Type
- Multi Control Devices
- TACT



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 | 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 mN·m | 12 | 12 | Vertical | — | — | 1,200 | EC12E1220407 | 2 |
| 20 | | | | | | | | EC12E1220406 | 1 |
| 25 | | | | | | | | EC12E1220405 | |
| 8.5 (Hollow shaft) | Lightest (jog) 3±2 mN·m | 12 | 12 | | | | | EC12E1220301 | 3 |
| 20 | | | | | | | | EC12E1240405 | 1 |
| 25 | | | | | | | | EC12E1240406 | |
| 8.5 (Hollow shaft) | Standard 3 to 20 mN·m | 24 | 24 | | | | | EC12E1240301 | 3 |
| 15 | | | | | | | | EC12E24204A2 | 2 |
| 17.5 | | | | | | | | EC12E24204A7 | 1 |
| 20 | EC12E24204A8 | | | | | | | | |
| 25 | EC12E24204A9 | | | | | | | | |
| 8.5 (Hollow shaft) | Lightest (jog) 3±2 mN·m | 24 | 24 | | | | | EC12E2420301 | 3 |
| 20 | | | | EC12E24404A8 | 1 | | | | |
| 25 | | | | EC12E24404A6 | | | | | |
| 8.5 (Hollow shaft) | Light 10mN·m max. | Without | 24 | EC12E2440301 | 3 | | | | |
| 20 | | | | EC12E24104A6 | 1 | | | | |
| 20 | | | | EC12E2430404 | | | | | |
| 25 | Standard 25±15 mN·m | Without | 24 | EC12E2430401 | | | | | |

Products Line

With Bushing Type

| Length of operating section (mm) | Detent torque | 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 mN·m | 12 | 12 | Vertical | — | — | 950 | EC12E1220813 | 4 |
| 20 | | 24 | 24 | | | | | EC12E2420802 | |
| 25 | | | | | | | | EC12E2420801 | |
| 30 | | EC12E2420803 | | | | | | | |
| 20 | Standard 25±15 mN·m | Without | 24 | Vertical | — | — | 950 | EC12E2430804 | 4 |
| 25 | | | | | | | | EC12E2430803 | |
| 30 | | | | | | | | EC12E2460802 | |
| 30 | Heavy 40±15 mN·m | | | | | | | | |

With Switch Type

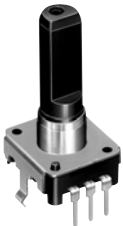
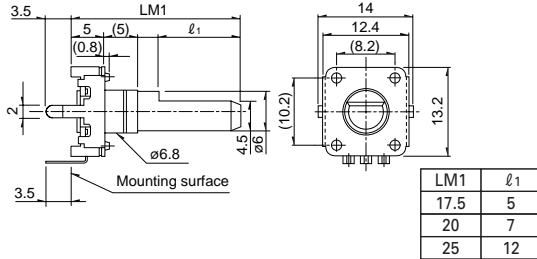
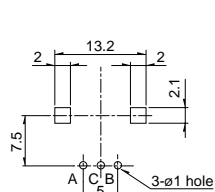

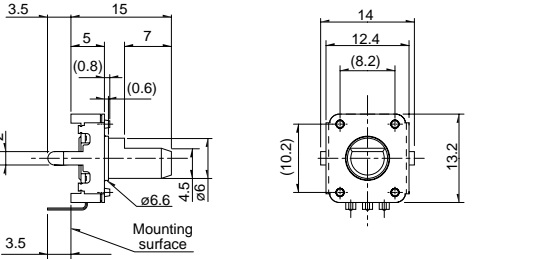
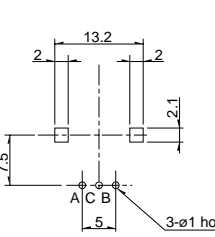
| Length of operating section (mm) | Detent torque | Number of detent | Resolution | Operating direction | Operating force of switch (N) | Travel of push-on switch (mm) | Minimum packing unit (pcs.) | Products No. | Drawing No. |
|----------------------------------|----------------------------|------------------|------------|---------------------|-------------------------------|-------------------------------|-----------------------------|--------------|-------------|
| 20 | Standard 3 to 20 mN·m | 24 | 24 | Vertical | 6 | 0.5 | 1,200 | EC12E24244A3 | 5 |
| 20 | | | | | 3 | | | EC12E2424407 | |
| 25 | | | | | | | | EC12E2424404 | |
| 30 | | | | | EC12E24244A4 | | | | |
| 17.5 | Lightest (jog) 3±2 mN·m | | | Vertical | 3 | 0.5 | 1,200 | EC12E2444A2 | 5 |
| 20 | | | | | | | | EC12E2444A0 | |
| 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

Jog Shuttle

Telephone-hook

Detector

Vibration Sensors

Dual-in-line Package Type

Multi Control Devices

TACT


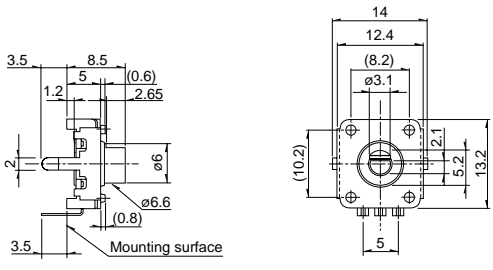
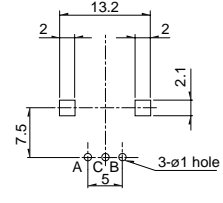

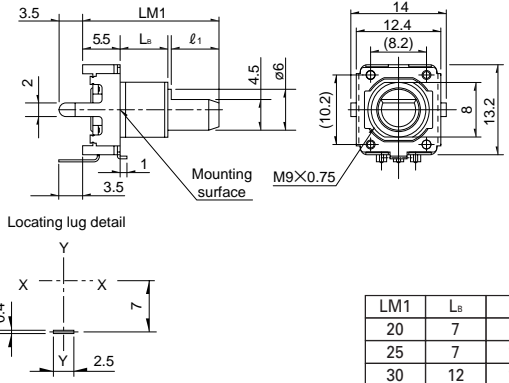
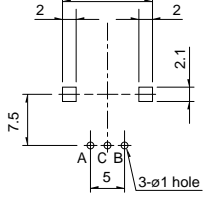

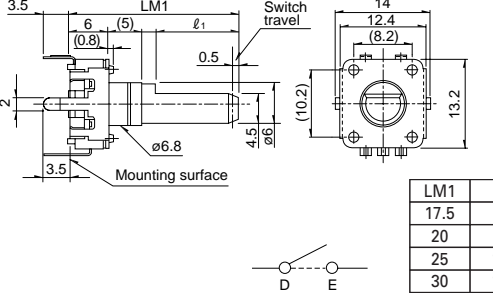
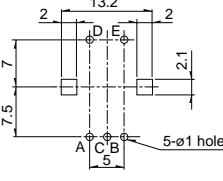
Incremental Type

Absolute Type

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

Dimensions

Unit : mm

| No. | Model | Style | PC board mounting hole dimensions (Viewed from mounting face) |
|-----|--|--|---|
| 3 | Hollow shaft  |  |  |
| 4 | With bushing  |  |  |
| 5 | With push-on switch  |  |  |

- Power
- Push
- Slide
- Rotary
- Encoders**
- Jog Shuttle
- Telephone-hook
- Detector
- Vibration Sensors
- Dual-in-line Package Type
- Multi Control Devices
- TACT
- Incremental Type
- Absolute Type

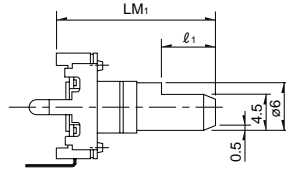
Variety

Shaft Dimensions

Flat Type

Unit : mm

With high collar type

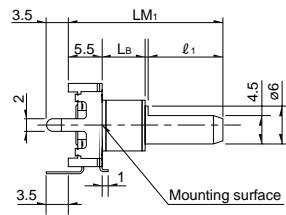


Vertical type

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

Jog Shuttle

Telephone-hook

Detector

Vibration Sensors

Dual-in-line Package Type

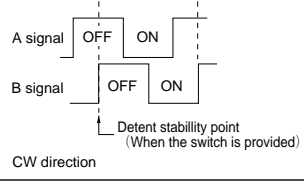
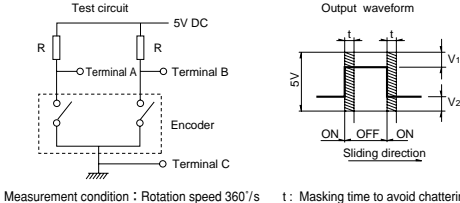
Multi Control Devices

TACT

Incremental Type

Absolute Type

Products Specifications

| Items | 12mm size insulated shaft encoders | | | | |
|---------------------------|--|------------------------------|---|--------------|--------------|
| | Standard detent | Without detent | With switch | | |
| Power | Operating temperature range -10°C to +60°C | | | | |
| Push | Maximum operating current (Resistive load) 5mA | | | | |
| Slide | Rating 0.5mA 5V DC | | | | |
| Rotary | Output signal Output of A and B signals, proportionate to phase difference | | | | |
| Encoders | Output wave  | | | | |
| Jog Shuttle | Sliding noise V1=V2=1.5V max.  | | | | |
| Telephone-hook | At R = 10kΩ Chattering :3ms max. Bounce :2ms max. | | | | |
| Detector | Insulation resistance 50V DC 10MΩ min. | | | | |
| Vibration Sensors | Voltage proof 50V AC | | | | |
| Dual-in-line Package Type | Rotational torque — | | | | |
| Multi Control Devices | Detent torque 3±2mN·m, 10mN·m max. 3 to 20mN·m, 40±15mN·m | | | | |
| TACT | Push-pull strength 80N | | | | |
| Incremental Type | Mechanical performance | Resistance to soldering heat | Manual soldering 300°C or less, or within 3s | | |
| | | | Dip soldering 260°C ±5°C, 5±1s | | |
| | | | Reflow soldering — | | |
| Absolute Type | Durability | Rotational life | 30,000cycles | 15,000cycles | 30,000cycles |
| 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 | 100m Ω for initial period; 200m Ω after rotational life |
| Operating life | 20,000 times min. |