

Encoder 10mm Size Hollow Shaft Type

EC10E Series



A series of compact and long-life encoders with unique hollow shaft design.

Detector

Push

Slide

Rotary

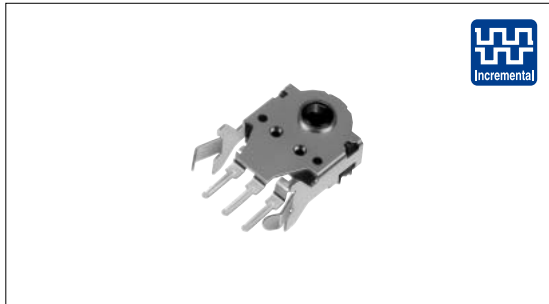
Encoders

Power

Dual-in-line
Package Type

TACT Switch™

Custom-
Products



Typical Specifications

| Items | Specifications |
|----------------|----------------|
| Rating | 1mA 5V DC |
| Operating life | 100,000cycles |

Product Line

| Mount height (mm) | Detent torque (mN·m) | Number of detent | Number of pulse | Operating direction | Minimum order unit(pcs.) | Product No. |
|-------------------|----------------------|------------------|-----------------|---------------------|--------------------------|--------------|
| 7 | 5 ± 3 | 24 | 12 | Horizontal | 1,600 | EC10E1220505 |
| 9 | | | | | | EC10E1220501 |
| 11 | | | | | | EC10E1220503 |

Dimensions





Unit:mm

| Style | PC board mounting hole dimensions |
|-------|-----------------------------------|
| | |

Incremental
Type

Absolute
Type

List of Varieties

| Type | Hollow shaft | | Magnetic | | | | |
|--|---|---|---|---|-------------------------------|-------------------|---------------------|
| | 5mm size | 10mm size | 11mm size | 20mm size | | | |
| Series | EC05E | EC10E | EM11B | EM20B | | | |
| Detector |  |  |  |  | | | |
| Push | | | | | | | |
| Slide | Incremental | | | | | | |
| Rotary Encoders Power Dual-in-line Package Type TACT Switch™ Custom-Products | Outline specifications | Hollow shaft | | Single-shaft | | | |
| | | Shaft types | | Vertical | | | |
| | | Operating direction | | Horizontal | | | |
| | | Number of pulse/ Number of detent | | 12/12 | 12/24 | 16/16 | 40/40 |
| | | Push switch (Travel mm) | | Without | | With(0.5) | Without/With(0.5) |
| | | Optional functions | | | | Display function | |
| Dimensions (mm) | W | 5.7 | 9.8 | 10.8 | 20 | | |
| | D | 2.7 | 12.6 | 11 | 22.25 | | |
| | H | 6.5 | 4.4 | 7.5 | 13 | | |
| Soldering | Manual soldering | 350 max. 3s max. | | | | | |
| | Dip soldering | — | 260 ± 5 , 3 ± 1s | 260 max. 3s max. | | | |
| | Reflow soldering | Please see P.189 | | | | | |
| Operating temperature range | - 30 to + 85 | | | -10 to + 70 | | | |
| Maximum operating current(resistive load) | 0.55mA | 1mA | V _{HI} : + 4.0V min. V _{LO} : 0.5V max. (Isink=5mA) | | | | |
| Incremental Type Absolute Type | Electrical performance | Output signal | | Output of A and B signals, proportionate to phase difference | | | |
| | | Output type | | A,B(Square wave) | | | |
| | | Instulation resistance | | Incremental | | | |
| | | Voltage proof | | 50M min. 50V DC | 100M min. 100V DC | 100M min. 250V DC | |
| Mechanical performance | Rotational torque | | 7mN·m max. | | | | |
| | Detent torque | | 1.6 ± 1.3mN·m | 5 ± 3mN·m | 10 ± 5mN·m | | |
| | Push-pull strength | | 100N | | | | |
| Environmental performance | Cold | | - 40 ± 3 for 240h | - 40 ± 3 for 96h | - 30 ± 3 for 240h | | |
| | Dry heat | | 85 ± 3 for 240h | 85 ± 3 for 96h | 80 ± 3 for 240h | | |
| | Damp heat | | 40 ± 2 , 90 to 95%RH for 240h | 40 ± 2 , 90 to 95%RH for 96h | 40 ± 2 , 90 to 95%RH for 240h | | |
| Page | 195 | 198 | 199 | 200 | | | |

Push-on Switch Specifications

| Items | EM11B | EM20B |
|-----------------------|--|---|
| Contact arrangement | Single pole and single throw(Push-on) | |
| Travel(mm) | 0.5 ^{+ 0.3} _{- 0.2} | 0.5 ^{+ 0.4} _{- 0.3} |
| Operating force (N) | 5.5 ± 3 | 6 ± 3 |
| Rating | 5mA 5V DC (50mA 12V DC) | |
| Contact resistance | 500m max for initial period;5 max after operating life | 100m max for initial period;200m max after operating life |
| Operating life | 1,000,000times min. | |
| | 25,000times min. | |

| | |
|-------------------------------|----------|
| Encoders Attached Parts | 209 |
| Encoders Cautions | 210, 211 |

Note

※ The operating temperature range for automotive applications can be raised upon request. Please contact us for requirements of this kind.