Commercial Miniature 9mm Encoders

Features
- Miniature 9mm style
- 2 bit quadrature (Graycode)
- Optional momentary switch
- Continuous rotation
- Durable metal shaft
- Available with 16 or 20 detents
- RoHS compliant

Electrical and Mechanical Specifications

Encoder Ratings:

- **Contact Resistance**: 1Ω maximum
- **Voltage Rating (each channel)**: 12 VDC @ 10 mA maximum. 5 VDC @ 1 mA minimum.
- **Phase Difference (FIG.1)**: T1,T2,T3,T4 — 2 milliseconds min for 20 pulse encoder. - 8 milliseconds min for 8 pulse encoder.
- **Contact Bounce / Chatter (FIG.3)**: t1, t2, t3 - 3 milliseconds max.

Detent Points
- 16 or 20 detents available

Rotational Life
- 50,000 cycles

Resolution
- 8 or 20 pulses in 360°

Insulation Resistance
- 100 megohms between all terminals & bushing at 250 VDC

Temperature Ratings
- Operation: - 30°C to +70°C

Solderability
- Flux for 5 - 10 sec., then dip into a solder bath at 260 ±5°C for 3 sec.

Pull and Thrust on Shaft
- Withstand a pushing or pulling force of 10 kg-f static load applied in axial direction for 10 ±1 sec. without physical damage or electrical degradation.

Momentary SPST Switch Ratings:

- **Switch Contact Resistance**: 100 mΩ maximum initial, 200mΩ after life cycles
- **Switch Rating**: 16 VDC @ 10mA min. to 0.5A max.
- **Switch Bounce**: 5 milliseconds maximum
- **Switch Operating Force**: 600 ±300 grams (21 ±11oz) for 0.5mm (.020”) travel
- **Switch Life**: 100,000 operations for 0.5mm (.020”) travel
- **Switch Travel**: 0.5mm (.020”)
TYPE MC-290V  Typical 2-Bit Encoder With Momentary Switch, Shaft Perpendicular to PC Board

20 PPR OUTPUT SIGNAL  
(FIG.1.1)

8 PPR OUTPUT SIGNAL  
(FIG.1.2)

PHASE DIFFERENCE

Shaft Trim

R - ROUND  
F - FLATTED  
K - KNURLED & SLOTTED  
S - SLOTTED

DIMENSION: mm

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Consult CTS for other available options not listed