**SERIES:** ACZ16 **DESCRIPTION:** mechanical incremental encoder

## ELECTRICAL SPECIFICATIONS

| parameter | conditions/description |
|---|---|
| output waveform | square wave |
| output signals | A, B phase |
| current consumption | 0.5 mA |
| output phase difference | T1, T2, T3, T4 ≥ 3.5 ms @ 60 rpm (see output waveform) |
| supply voltage | 5 V dc max. |
| output resolution | 12, 24 ppr |
| insulation resistance | 50 V dc, 100 MΩ |
| withstand voltage | 50 V ac |

## MECHANICAL SPECIFICATIONS

| parameter | conditions/description | min | nom | max | units |
|---|---|---|---|---|---|
| shaft load | axial | | | 7 | kgf |
| rotational torque | with detent click<br>without detent click | 50<br>90 | | 130<br>210 | gf·cm<br>gf·cm |
| rotational life | | | | 100,000 | cycles |

## ENVIRONMENTAL SPECIFICATIONS

| parameter | conditions/description | min | nom | max | units |
|---|---|---|---|---|---|
| operating temperature | | -10 | | 65 | °C |
| storage temperature | | -40 | | 75 | °C |
| humidity | | 85 | | | % RH |
| vibration | 0.75 mm max. travel for 2 hours | 10 | | 55 | Hz |

## PART NUMBER KEY

**ACZ16 X BR X E- XX XX X1- XXX**

Version:
"blank" = switch
N = no switch

Bushing:
1 = M7 x 0.75 (H = 5)
2 = M7 x 0.75 (H = 7)
4 = smooth (H = 5)
5 = smooth (H = 7)

Shaft length:
15, 20, 25

Shaft type:
KQ, F

Mounting orientation:
A = Horizontal
D = Vertical

Resolution (ppr):
12 = 12 ppr, no detent
12C = 12 ppr, 12 detent
24 = 24 ppr, no detent
24C = 24 ppr, 24 detent

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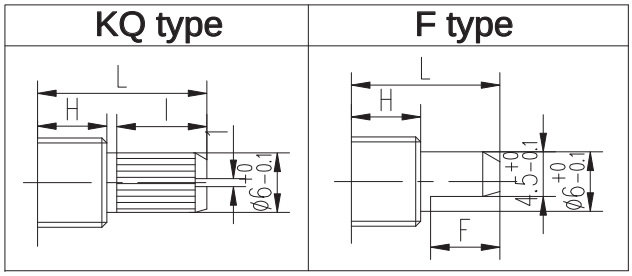
## SHAFT OPTIONS




**BUSHING**

| | Condition | *H* |
|---|---|---|
| 1 | M9-P0.75 | 5 |
| 2 | M9-P0.75 | 7 |

*H*=5

| | 15KQ | 20KQ | 25KQ |
|---|---|---|---|
| L | 15 | 20 | 25 |
| I | 7 | 12 | 12 |

*H*=5

| | 15F | 20F | 25F |
|---|---|---|---|
| L | 15 | 20 | 25 |
| F | 8 | 10 | 12 |

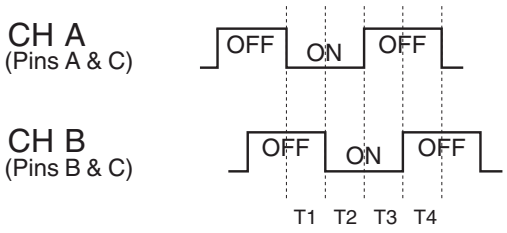
*H*=7

| | 15KQ | 20KQ | 25KQ |
|---|---|---|---|
| L | 15 | 20 | 25 |
| I | 7 | 12 | 12 |

*H*=7

| | 15F | 20F | 25F |
|---|---|---|---|
| L | 15 | 20 | 25 |
| F | 8 | 10 | 12 |

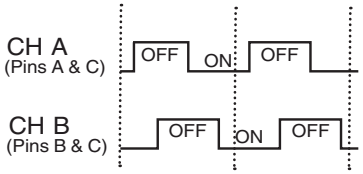
## OUTPUT WAVEFORM




CW direction (@ 60 rpm)

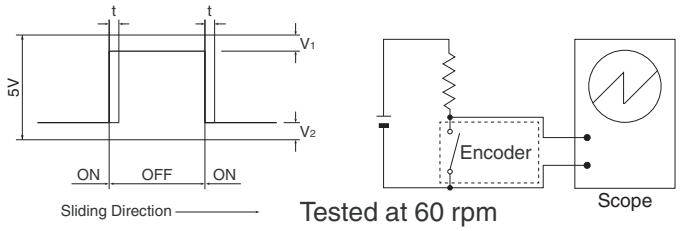
## DETENT POSITIONS

Model 12C & 24C



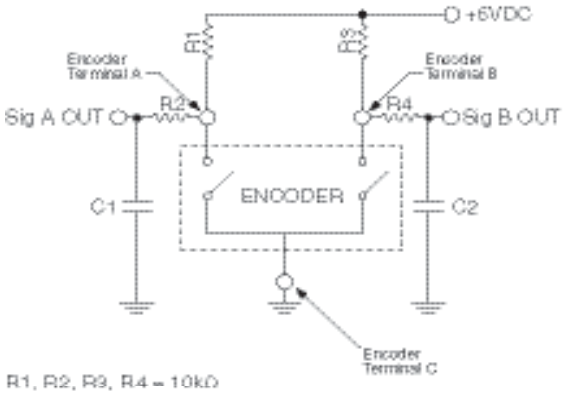

## SLIDING NOISE

t = Masking time to avoid chatter (5mS) $V_1 = V_2 = 1V$ max.




Tested at 60 rpm

## SUGGESTED FILTER




R1, R2, R3, R4 = 10kΩ
C1, C2 = 0.01µF

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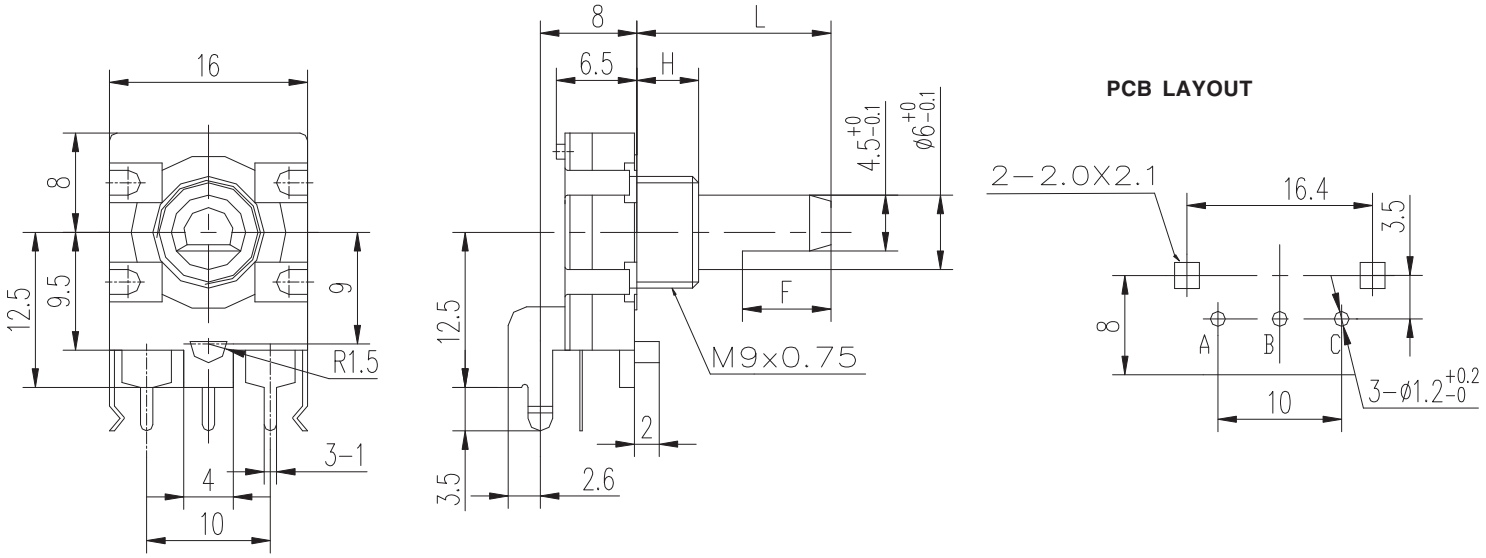
## MECHANICAL DRAWING (horizontal)




## MECHANICAL DRAWING (vertical)