

**SERIES:** ACZ16 | **DESCRIPTION:** MECHANICAL INCREMENTAL ENCODER

## ELECTRICAL SPECIFICATIONS

| parameter               | conditions/description                                      | min | typ | max | units |
|-------------------------|-------------------------------------------------------------|-----|-----|-----|-------|
| output waveform         | square wave                                                 |     |     |     |       |
| output signals          | A, B phase                                                  |     |     |     |       |
| current consumption     | 0.5 mA                                                      |     |     |     |       |
| output phase difference | T1, T2, T3, T4 $\geq$ 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 M $\Omega$                                     |     |     |     |       |
| withstand voltage       | 50 V ac                                                     |     |     |     |       |

## MECHANICAL SPECIFICATIONS

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

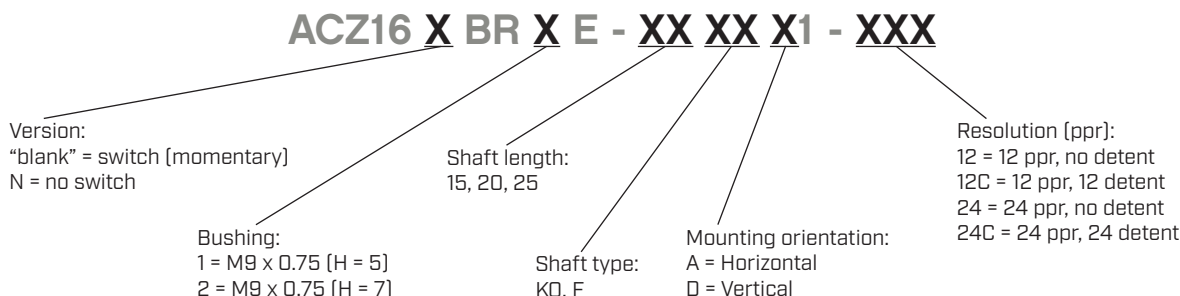
## ENVIRONMENTAL SPECIFICATIONS

| parameter             | conditions/description          | min | typ | 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    |
| hand soldering        | for maximum 3 seconds           |     |     | 350 | °C    |
| wave soldering        | for 5±1 seconds                 | 255 | 260 | 265 | °C    |

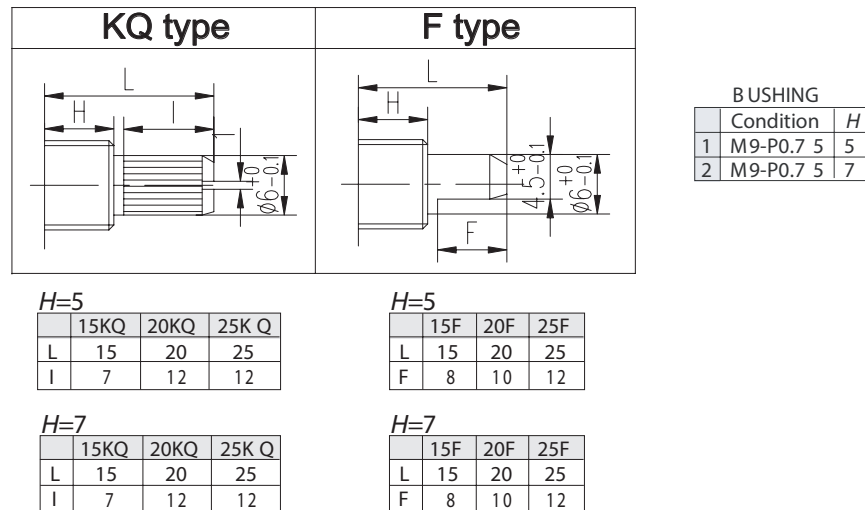
Notes:

1. It is recommended to use products within 6 months.
2. For storage conditions, it is recommended to keep away from direct sunlight, corrosive gas, or high humidity conditions.
3. Use the product as soon as possible once the plastic bag has been unsealed, and reseal the bag if product is not immediately used.
4. The products are packaged in sealed bags with anti humidity tablets.

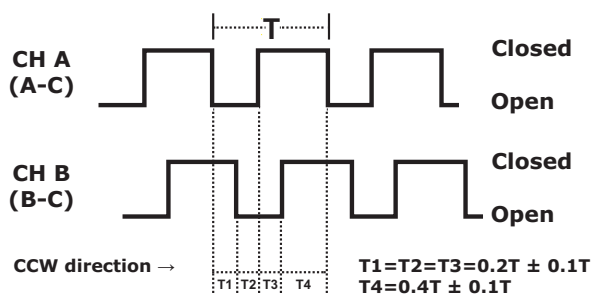
## PART NUMBER KEY



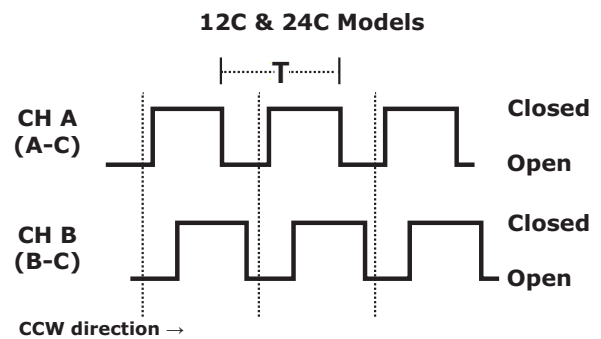
## SHAFT OPTIONS



## OUTPUT WAVEFORM



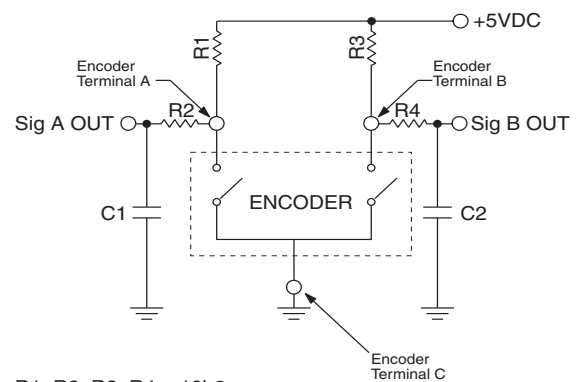
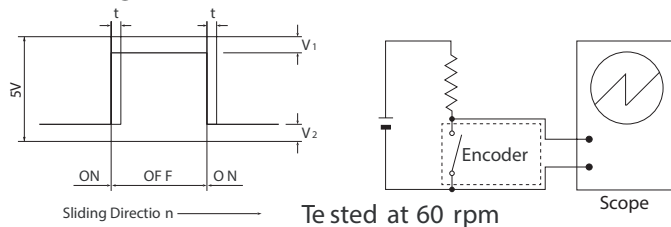
## DETENT POSITIONS



## SLIDING NOISE

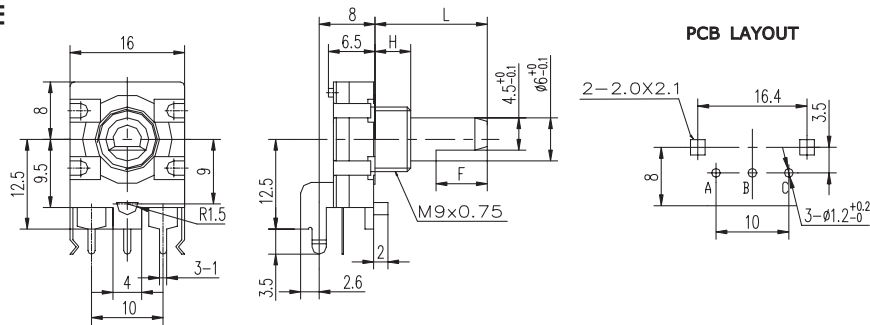
## SUGGESTED FILTER

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

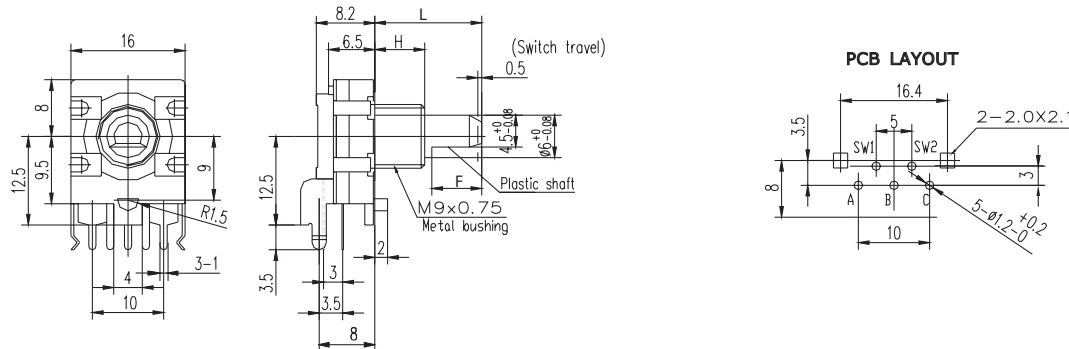


## MECHANICAL DRAWING (HORIZONTAL)

ACZ16NBRXE

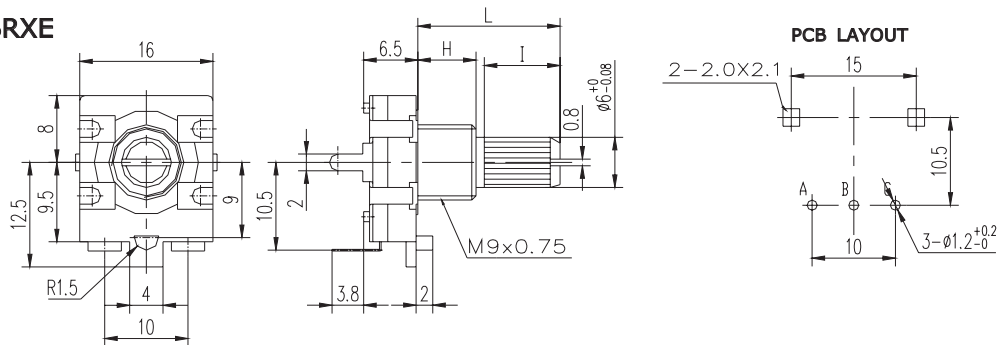


ACZ16BRXE

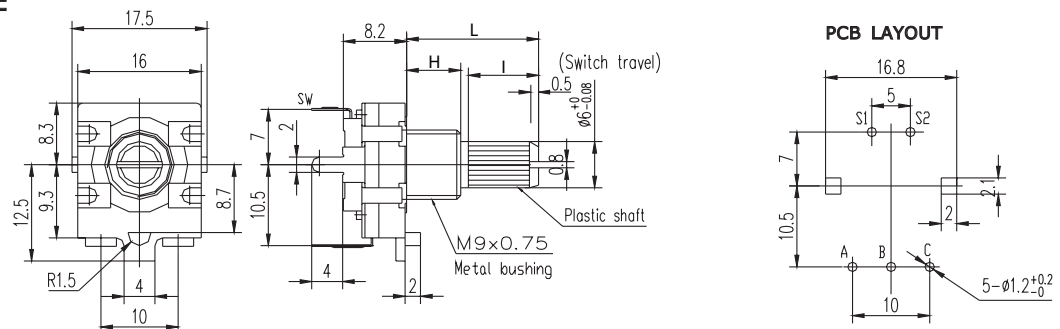


## MECHANICAL DRAWING (VERTICAL)

ACZ16NBRXE



ACZ16BRXE



## REVISION HISTORY

| rev. | description                       | date       |
|------|-----------------------------------|------------|
| 1.0  | initial release                   | 10/30/2009 |
| 1.01 | added storage details             | 12/04/2014 |
| 1.02 | brand update                      | 10/04/2019 |
| 1.03 | updated datasheet                 | 06/15/2020 |
| 1.04 | updated drawings                  | 07/14/2020 |
| 1.05 | logo, datasheet style update      | 09/08/2022 |
| 1.06 | CUI Devices rebranded to Same Sky | 09/12/2024 |
| 1.07 | added soldering details           | 04/04/2025 |

The revision history provided is for informational purposes only and is believed to be accurate.



Same Sky offers a one (1) year limited warranty. Complete warranty information is listed on our website.

Same Sky reserves the right to make changes to the product at any time without notice. Information provided by Same Sky is believed to be accurate and reliable. However, no responsibility is assumed by Same Sky for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

Same Sky products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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