

**SERIES:** ACZ12 | **DESCRIPTION:** MECHANICAL INCREMENTAL ENCODER

## ELECTRICAL SPECIFICATIONS

parameter	conditions/description	min	typ	max	units
output waveform	square wave				
output signals	A, B phase				
current consumption	10 mA				
output phase difference	T1, T2, T3, T4 ≥ 3.5 ms @ 60 rpm (see output waveform)				
supply voltage	12 V dc max.				
output resolution	12, 24 ppr				
switch rating	12 V dc, 50 mA (ACZ12BRXE models only)				
insulation resistance	300 V dc, 100 MΩ				
withstand voltage	300 V ac				

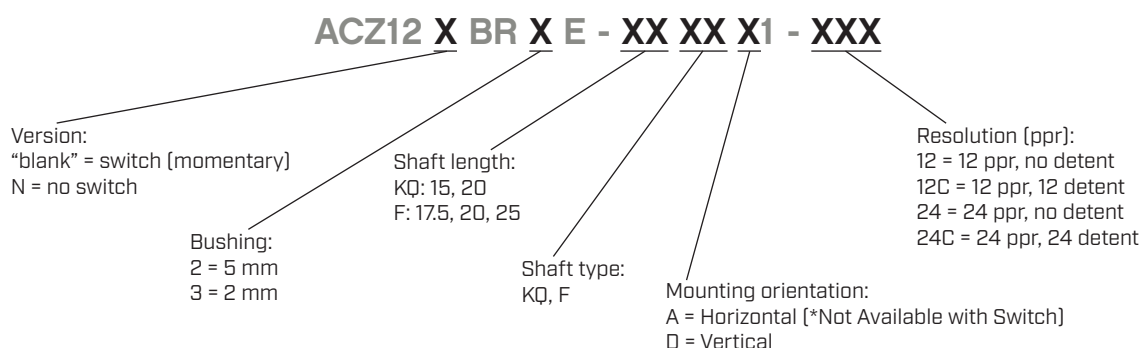
## MECHANICAL SPECIFICATIONS

parameter	conditions/description	min	typ	max	units
shaft load	axial			3	kgf
rotational torque	with detent click	30		200	gf•cm
	without detent click	60	80	100	gf•cm
push switch operational force	[ACZ12BRXE models only]	300		900	gf•cm
push switch life	[ACZ12BRXE models only]			50,000	
rotational life				30,000	cycles

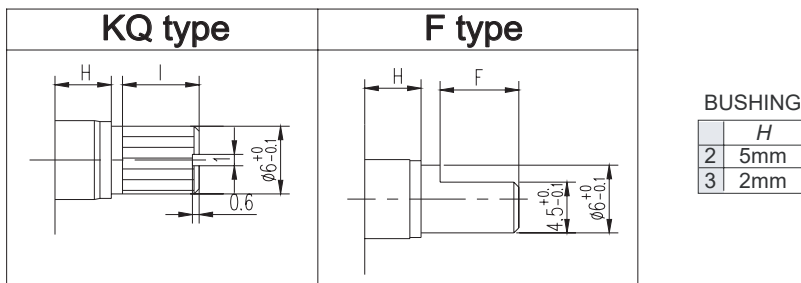
## ENVIRONMENTAL SPECIFICATIONS

parameter	conditions/description	min	typ	max	units
operating temperature		-10		75	°C
storage temperature		-20		85	°C
humidity		85			% RH
vibration	0.75 mm max. travel for 2 hours	10		55	Hz

## PART NUMBER KEY



## SHAFT OPTIONS



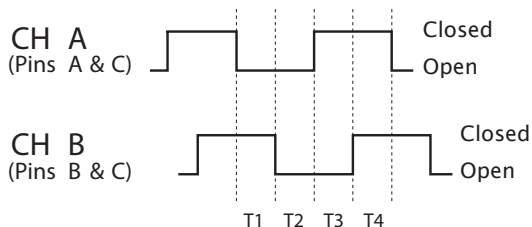
H= 2 or 5 (mm)

	20KQ	15KQ
L	20	15
I	7	5

H= 2 or 5 (mm)

	25F	20F	17F
L	25	20	17.5
F	12	7	5

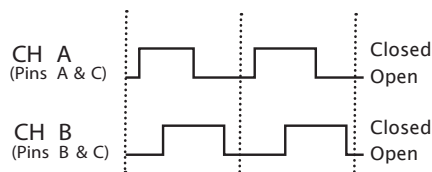
## OUTPUT WAVEFORM



CW direction (@ 60 rpm)

## DETENT POSITIONS

Model 12C & 24C

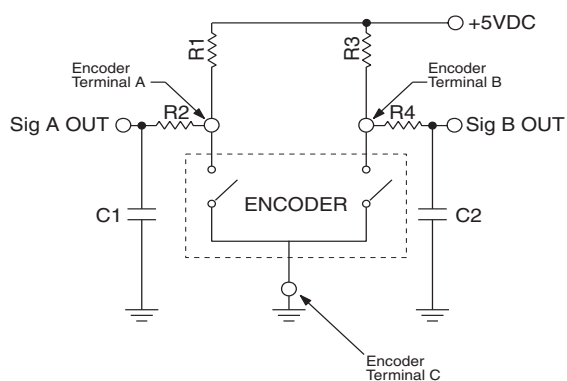
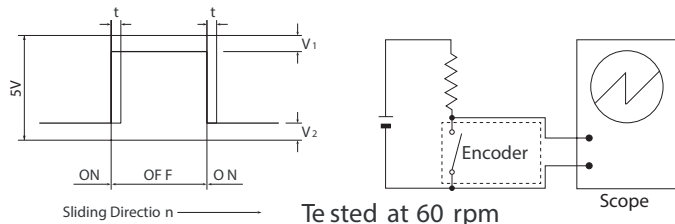


CW direction →

## SLIDING NOISE

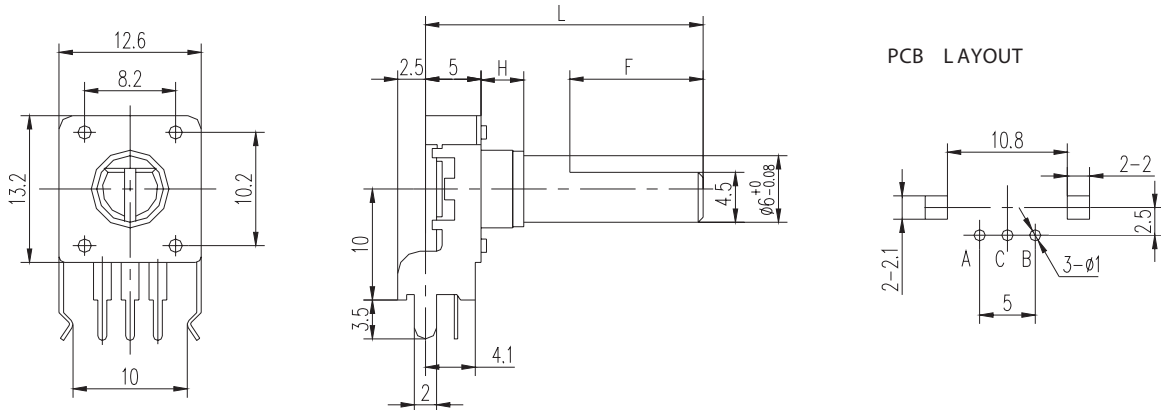
## SUGGESTED FILTER

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



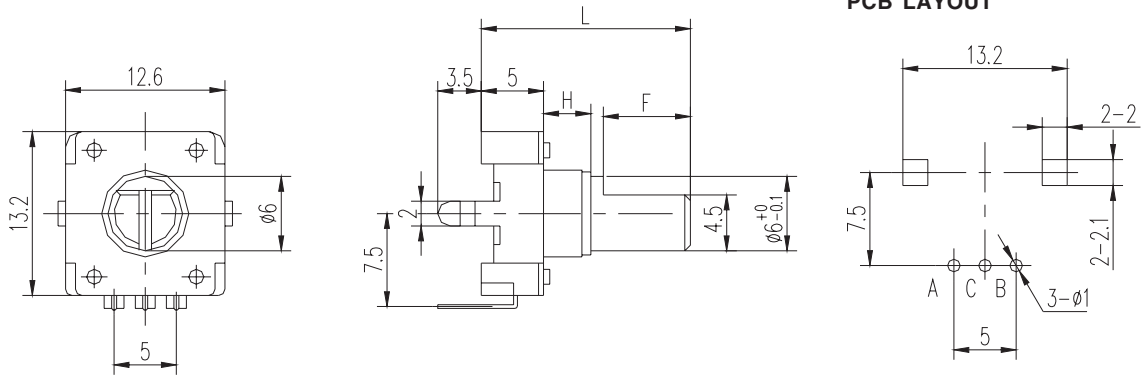
R1, R2, R3, R4 = 10kΩ  
C1, C2 = 0.01μF

## MECHANICAL DRAWING (HORIZONTAL)

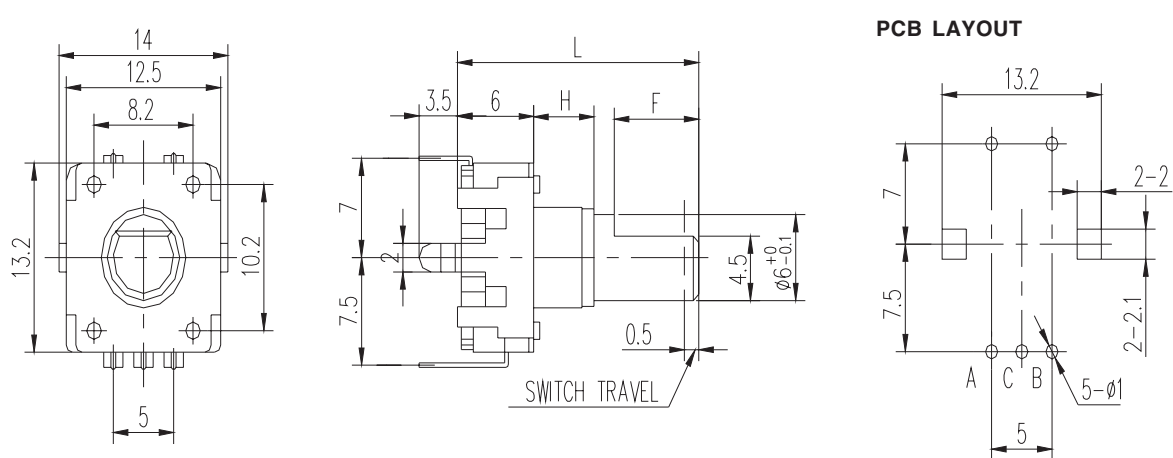


## MECHANICAL DRAWING (VERTICAL)

ACZ12NBRXE



ACZ12BRXE



## REVISION HISTORY

rev.	description	date
1.0	initial release	10/30/2009
1.01	brand update	10/04/2019
1.02	updated datasheet	06/15/2020
1.03	logo, datasheet style update	09/08/2022

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



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