

SERIES: ACZ11

DESCRIPTION: mechanical incremental encoder

## ELECTRICAL SPECIFICATIONS

parameter	conditions/description
output waveform	square wave
output signals	A, B phase
current consumption	10 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, 15, 20, 30 ppr
switch rating	12 V dc, 50 mA (ACZ11BRXE models only)
insulation resistance	300 V dc, 100 M $\Omega$
withstand voltage	300 V ac

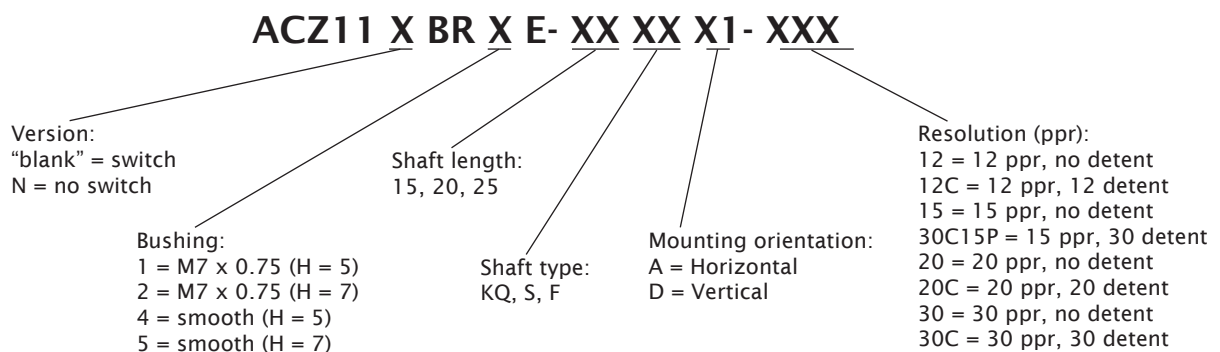
## MECHANICAL SPECIFICATIONS

parameter	conditions/description	min	nom	max	units
shaft load	axial			8	kgf
rotational torque	with detent click	60	140	220	gf · cm
	without detent click	60	80	100	gf · cm
push switch operational force	(ACZ11BRXE models only)	300		900	gf · cm
push switch life	(ACZ11BRXE models only)			50,000	cycles
rotational life				30,000	cycles

## ENVIRONMENTAL SPECIFICATIONS

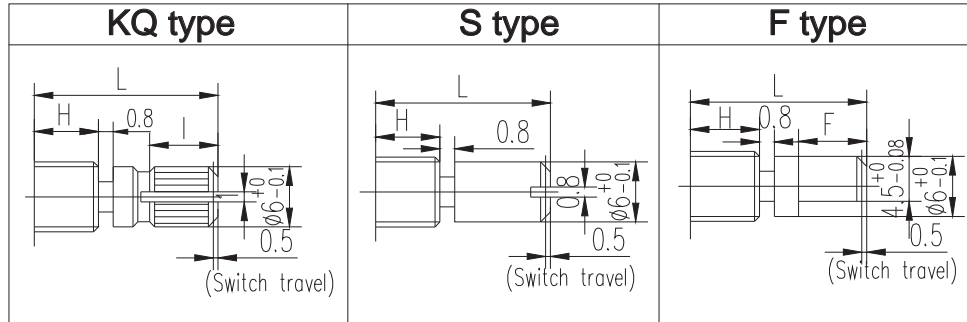
parameter	conditions/description	min	nom	max	units
operating temperature		-10		65	$^{\circ}$ C
storage temperature		-40		75	$^{\circ}$ C
humidity		85			% RH
vibration	0.75 mm max. travel for 2 hours	10		55	Hz

## PART NUMBER KEY



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**SHAFT OPTIONS**


BUSHING		
Condition	H	
1	M7-P0.75	5
2	M7-P0.75	7
4	smooth	5
5	smooth	7

switch travel for ACZ11BRXE only

H=5			
	15KQ	20KQ	25KQ
L	15	20	25
I	7	10	12

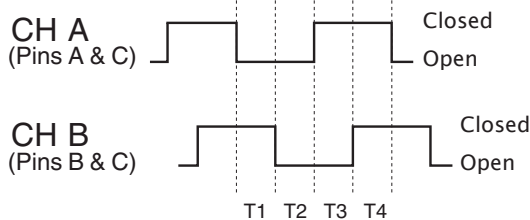
H=5			
	15S	20S	25S
L	15	20	25

H=5			
	15F	20F	25F
L	15	20	25
F	8	12	12

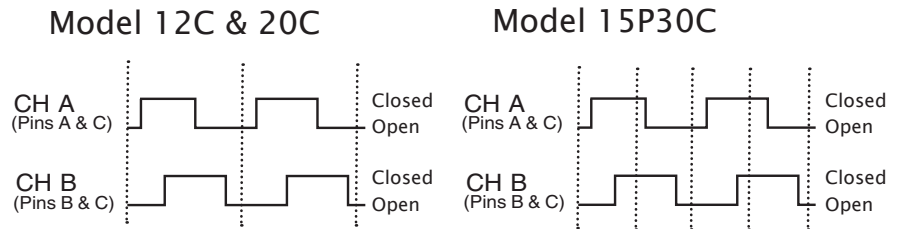
H=7			
	15KQ	20KQ	25KQ
L	15	20	25
I	5	8.5	10

H=7			
	15S	20S	25S
L	15	20	25

H=7			
	15F	20F	25F
L	15	20	25
F	8	12	12

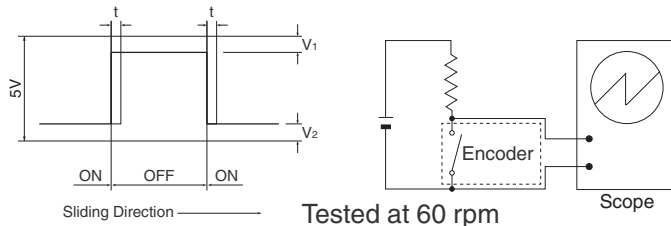
**OUTPUT WAVEFORM**


CW direction (@ 60 rpm)

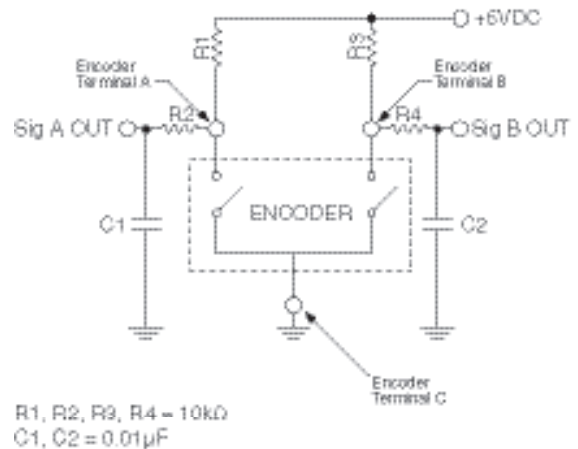
**DETENT POSITIONS**


CW direction →

CW direction →

**SLIDING NOISE**
 $t = \text{Masking time to avoid chatter (5mS)}$   $V_1 = V_2 = 1V \text{ max.}$ 


Tested at 60 rpm

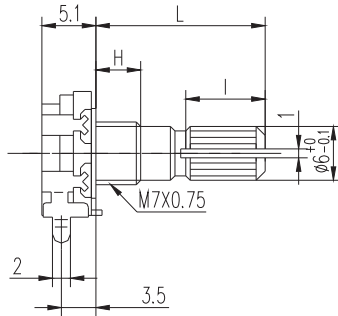
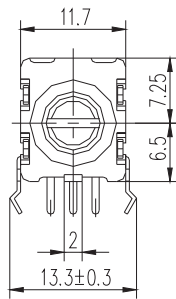
**SUGGESTED FILTER**

 $R1, R2, R3, R4 = 10k\Omega$   
 $C1, C2 = 0.01\mu F$

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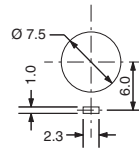
DESCRIPTION: mechanical incremental encoder

**MECHANICAL DRAWING (horizontal)**

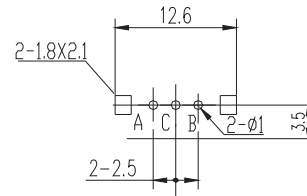
ACZ11NBRXE



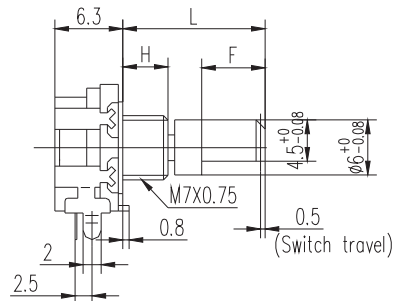
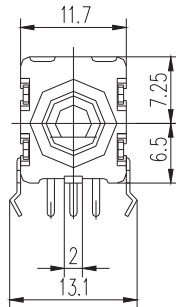
PANEL CUT-OUT



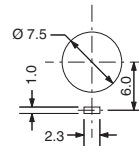
PCB LAYOUT



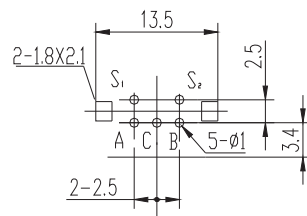
ACZ11BRXE



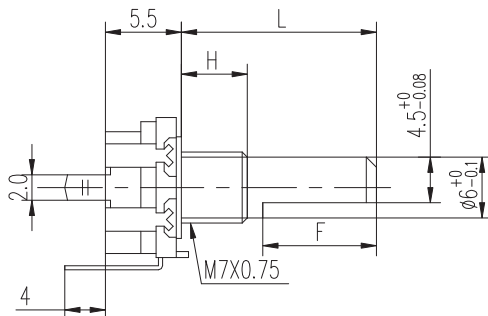
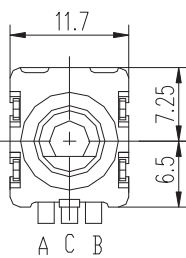
PANEL CUT-OUT



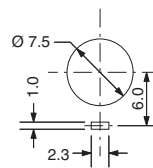
PCB LAYOUT


**MECHANICAL DRAWING (vertical)**

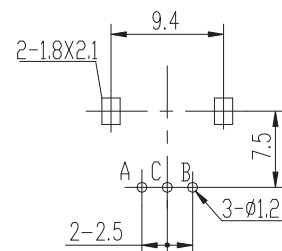
ACZ11NBRXE



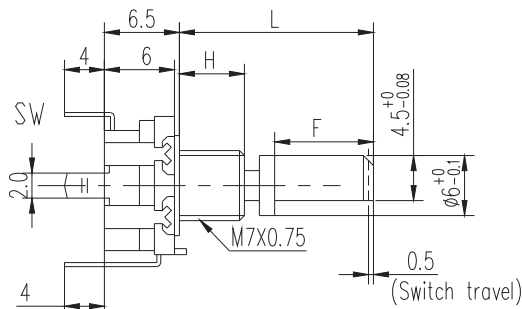
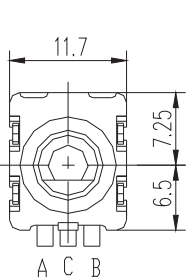
PANEL CUT-OUT



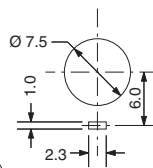
PCB LAYOUT



ACZ11BRXE



PANEL CUT-OUT



PCB LAYOUT

