

**SERIES:** ACZ11 | **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 $\geq$ 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				

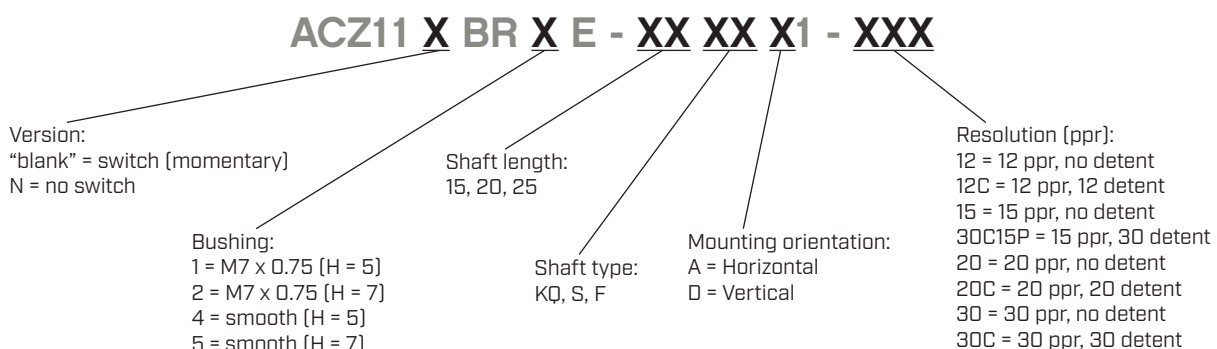
## MECHANICAL SPECIFICATIONS

parameter	conditions/description	min	typ	max	units
shaft load	axial			8	kgf
rotational torque	with detent click without detent click	60 60	140 80	220 100	gf·cm 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

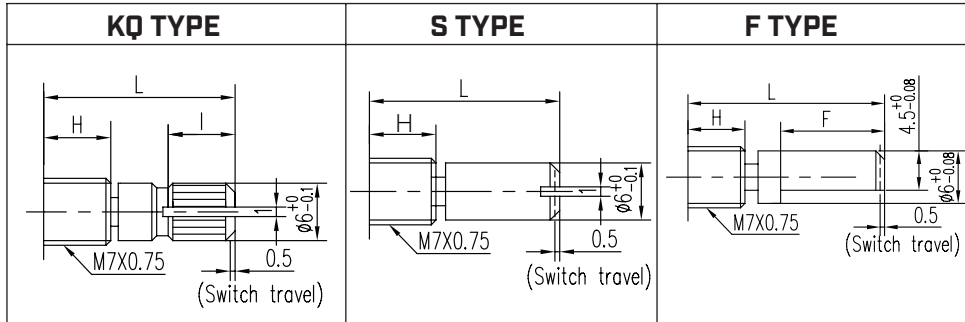
parameter	conditions/description	min	typ	max	units
operating temperature		-10		65	$^{\circ}$ C
storage temperature		-40		75	$^{\circ}$ C
humidity		85			% RH
vibration	0.75 mm max. travel for 2 hours	10		55	Hz

## PART NUMBER KEY



Replacement Hardware:  
M7x0.75 Nut: 071-0068R  
Washer: 071-0069R

## SHAFT OPTIONS (VERSIONS WITH SWITCH)



**H=5**

	15KQ	20KQ	25KQ
L	15	20	25
I	6	8.5	12

**H=5**

	15S	20S	25S
L	15	20	25

**H=5**

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

**H=7**

	15KQ	20KQ	25KQ
L	15	20	25
I	5	8.5	10

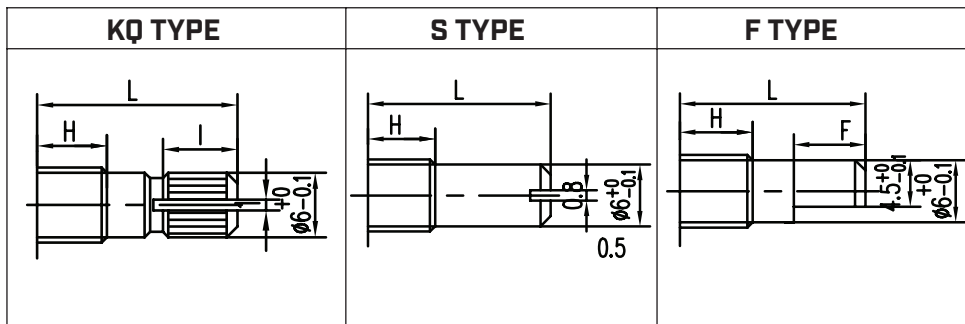
**H=7**

	15S	20S	25S
L	15	20	25

**H=7**

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

## SHAFT OPTIONS (VERSIONS WITHOUT SWITCH)



**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	10	12

**H=7**

	15KQ	20KQ	25KQ
L	15	20	25
I	5	10	10

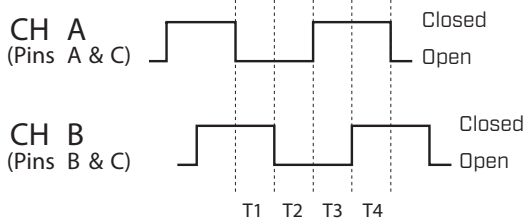
**H=7**

	15S	20S	25S
L	15	20	25

**H=7**

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

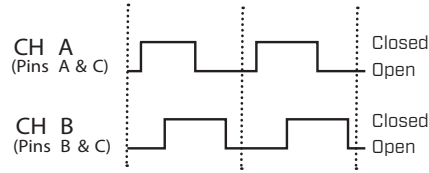
## OUTPUT WAVEFORM



CW direction (@ 60 rpm)

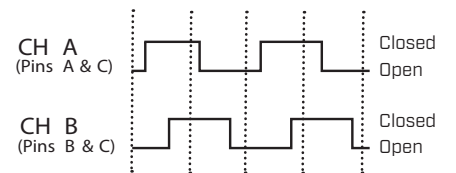
## DETENT POSITIONS

Model 12C & 20C



CW direction →

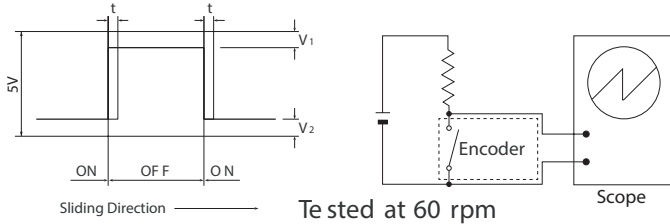
Model 15P30C



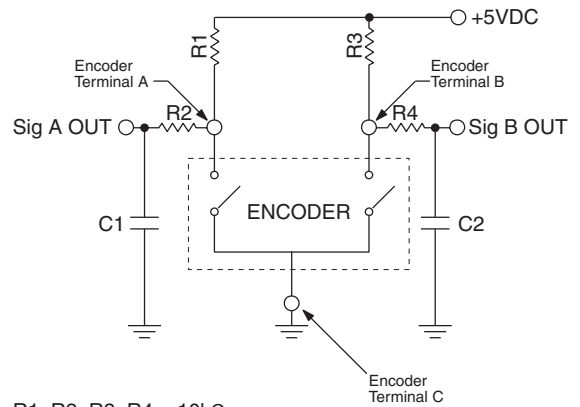
CW direction →

## SLIDING NOISE

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



## SUGGESTED FILTER

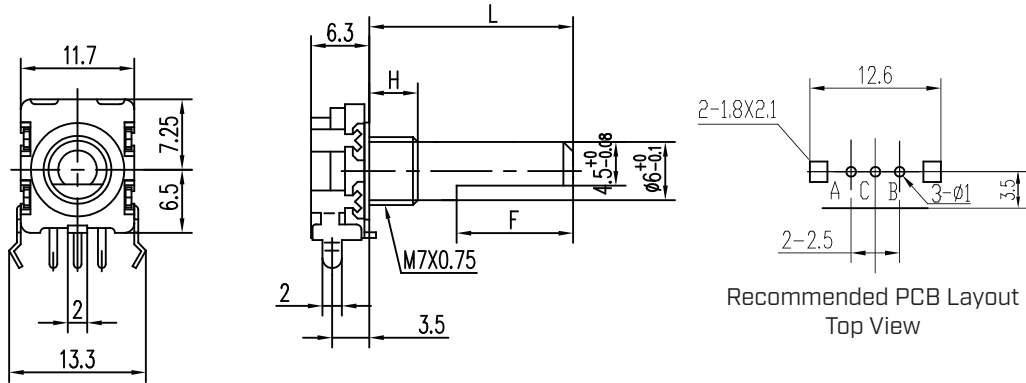


$R_1, R_2, R_3, R_4 = 10k\Omega$   
 $C_1, C_2 = 0.01\mu F$

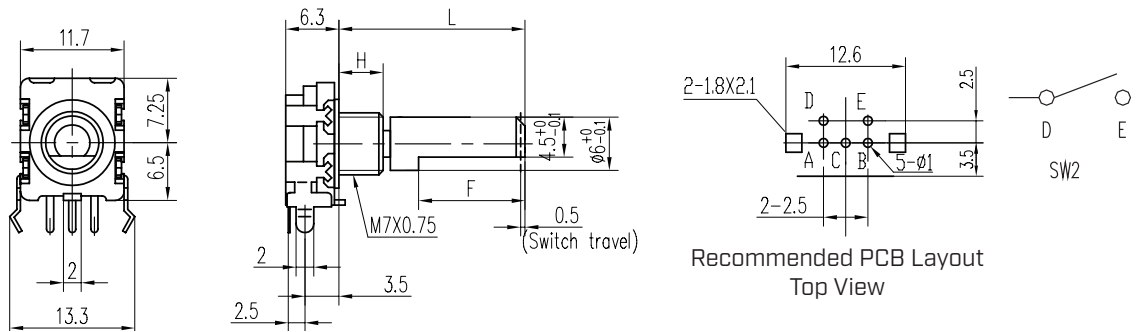
## MECHANICAL DRAWING (HORIZONTAL)

units: mm  
 tolerance:  
 $X \leq 10$ :  $\pm 0.3$  mm  
 $10 < X \leq 30$ :  $\pm 0.5$  mm  
 Unless otherwise noted

### ACZ11NBRXE



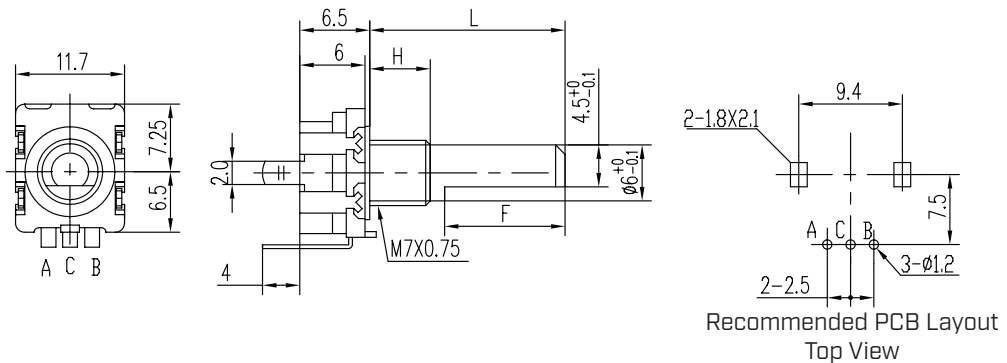
### ACZ11BRXE



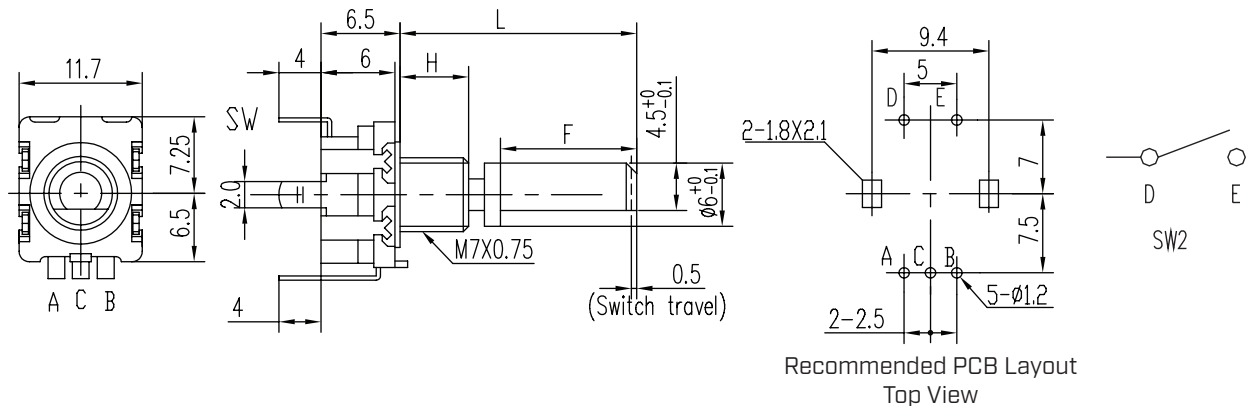
## MECHANICAL DRAWING (VERTICAL)

units: mm  
 tolerance:  
 $X \leq 10$ :  $\pm 0.3$  mm  
 $10 < X \leq 30$ :  $\pm 0.5$  mm  
 Unless otherwise noted

### ACZ11NBRXE



### ACZ11BRXE



## 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	updated drawings; 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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