

**PART NUMBER:** CZT01

**DESCRIPTION:** incremental encoder

**ELECTRICAL SPECIFICATIONS**

current consumption	100mA or less (under no load)
supply voltage	10 V dc
supply current	1 mA
output resolution (ppr)	12
contact resistance	500mΩ max.
insulation resistance	50MΩ min.
dielectric strength	50 V ac (50 ~ 60 Hz, cut-off current 2 mA) is applied between non-connected terminals and between terminals and the metal frame for 60 ±5 seconds

**MECHANICAL SPECIFICATIONS**

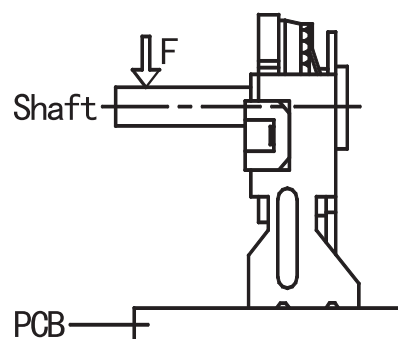
detent points	12 detent points each (detent angle: 30° ±3°)
shaft play in axial direction	0.3 mm max.
rotational torque	14 ~ 40 gf·cm
rotational life	100000 cycles (at 3~30 cycles per minute with 0.5 mA, 5 V dc load)
mounting height	7 ± 0.1mm
mechanical strength	free from mechanical abnormalities after test (testing detailed in figure 1)

**ENVIRONMENTAL SPECIFICATIONS**

operating temp	-25° to +85° C
humidity	≤85% RH
vibration proof	10 ~ 55 Hz / 1.5mm 2h each X, Y, Z

**FIGURE 1**

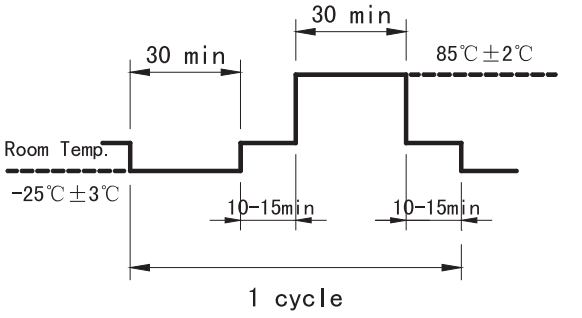
Mount the product to the P.C.B. and apply a static force of 10 gf·cm minimum. Contact resistance: 5Ω max., Insulation resistance: 10 MΩ min.



**PART NUMBER:** CZT01

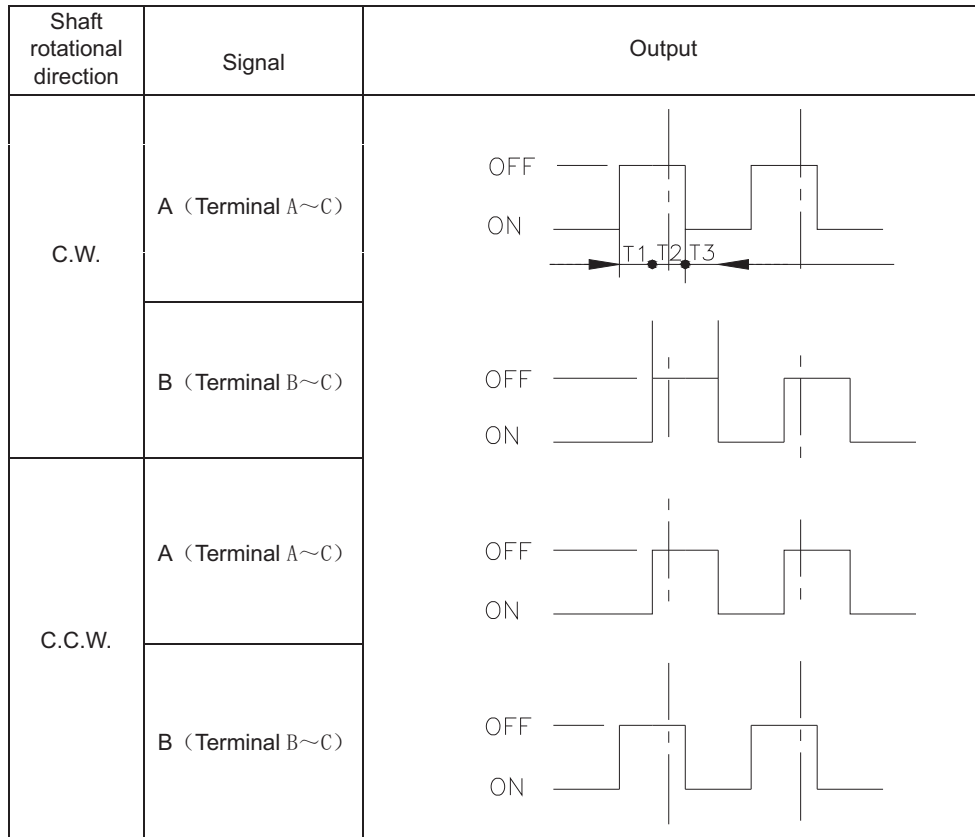
**DESCRIPTION:** incremental encoder

**WEATHER PROOF CHARACTERISTICS**

item	test condition	evaluation standard
cold proof	After testing at $-25^{\circ} \pm 2^{\circ}\text{C}$ for 96 hours, the encoder will be allowed to stand under normal temperature and humidity conditions for 1 hour. Measurements will be made within 1 hour after that. Condensation will be eliminated.	
hot proof	After testing at $85^{\circ} \pm 2^{\circ}\text{C}$ for 96 hours, the encoder will be allowed to stand under normal temperature and humidity conditions for 1 hour. Measurements will be made within 1 hour after that.	
moisture resistance	After testing at $40^{\circ} \pm 2^{\circ}\text{C}$ , 90 ~ 95% RH for 96 hours, the encoder will be allowed to stand under normal temperature and humidity conditions for 1 hour. Measurements will be made within 1 hour after that. Condensation will be eliminated.	
temperature cycling	After 5 cycles of the following conditions, the encoder will be allowed to stand under normal temperature and humidity conditions for 1 hour. Measurements will be made within 1 hour after that. Condensation will be eliminated. <div style="text-align: center;">  <p>The diagram illustrates a temperature cycling cycle. It starts at a baseline of <math>-25^{\circ}\text{C} \pm 3^{\circ}\text{C}</math>. The cycle consists of: a 30-minute dwell at <math>-25^{\circ}\text{C} \pm 3^{\circ}\text{C}</math>, a ramp up to Room Temp. (10-15 minutes), a 30-minute dwell at Room Temp., a ramp up to <math>85^{\circ}\text{C} \pm 2^{\circ}\text{C}</math> (10-15 minutes), a 30-minute dwell at <math>85^{\circ}\text{C} \pm 2^{\circ}\text{C}</math>, a ramp down to Room Temp. (10-15 minutes), and a 30-minute dwell at Room Temp. The entire sequence is labeled as '1 cycle'.</p> </div>	After test: Contact resistance: $5\Omega$ max. Insulation resistance: $10\text{M}\Omega$ min. The performance requirements specified in Electrical Specifications will be satisfied.
salt mist	The encoder will be checked after the following test: <ol style="list-style-type: none"> <li>1) Temperature: <math>35 \pm 2^{\circ}\text{C}</math></li> <li>2) Salt solution: <math>5 \pm 1\%</math> (solids by mass) Immersion time: 5 minutes</li> <li>3) After immersing, salt deposit will be removed by running water.</li> <li>4) Duration: 2 hours</li> </ol>	No corrosion will be recognized in the metal sections of the encoder.

**PART NUMBER:** CZT01

**DESCRIPTION:** incremental encoder

**OUTPUT WAVEFORM**

**SLIDING NOISE**

Between 3.5V and 1.5V

Measurement circuit

Diagram 1

 Measure condition: 360°/s  
 for rotational speed

 $t_1, t_3 : 3\text{ms Max.}$ 
 $t_2 : 2\text{ms Max.}$ 
 $T_1, T_2, T_3 : 5\text{ms Min.}$ 

Diagram 1

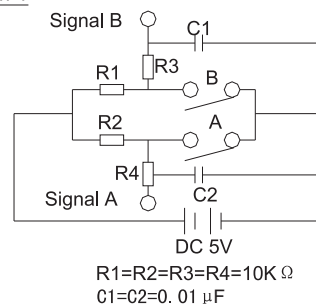
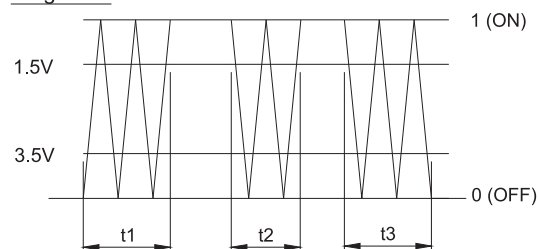
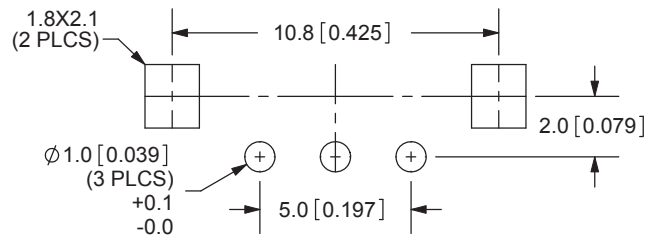
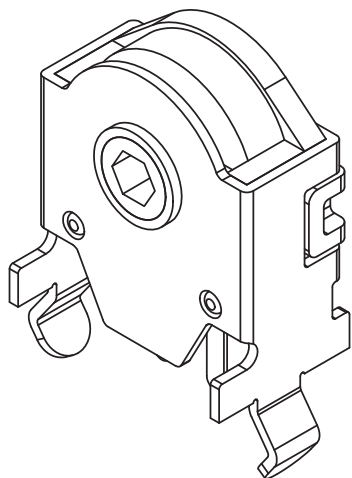
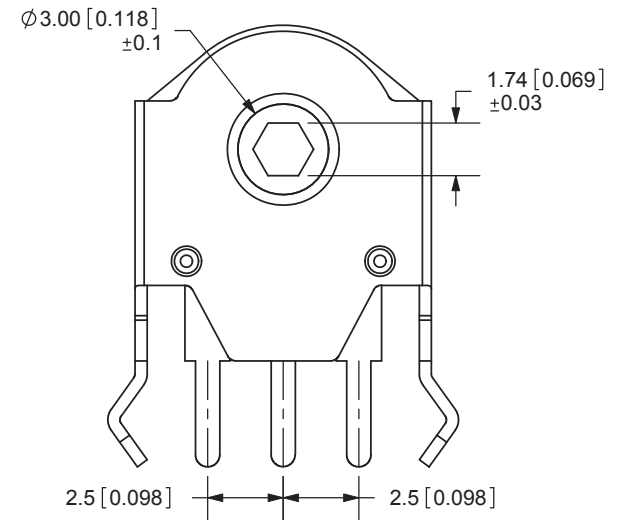
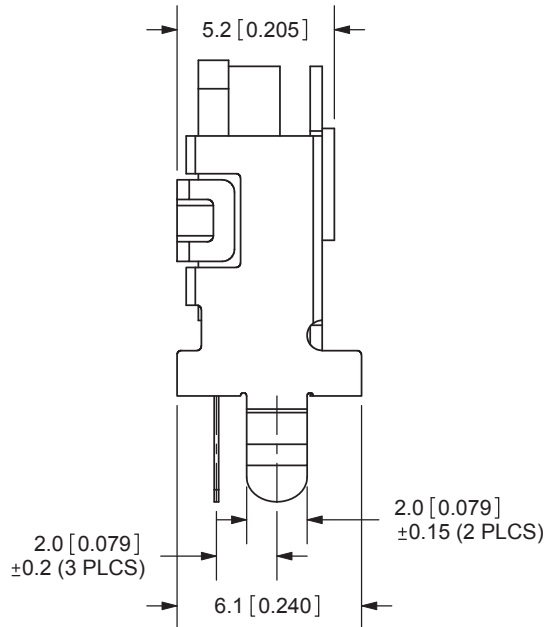
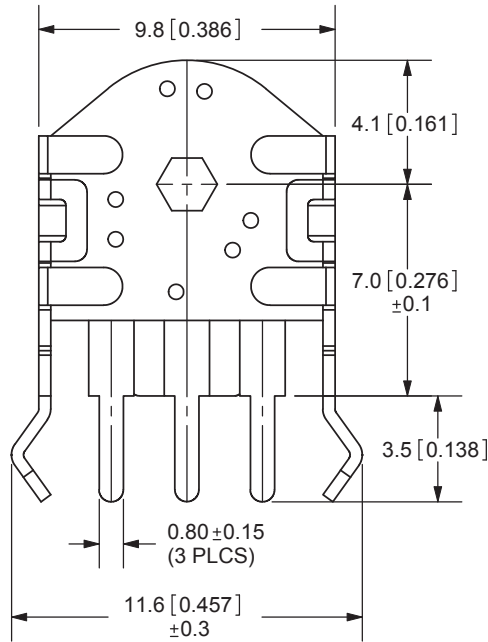


Diagram 2



REV.	DESCRIPTION	DATE
A	NEW DRAWING	7/8/2008



P.C.B. Layout  
TOLERANCE: ±0.1mm

TOLERANCE (unless otherwise stated):  
 X.X ±0.5mm  
 X.XX ±0.3mm  
 X.XXX ±0.1mm



20050 SW 112th Ave.  
 Tualatin, OR 97062  
 Phone: 503-612-2300  
 800-275-4899  
 Fax: 503-612-2383  
 Website: www.cui.com

TITLE: ENCODER		REV: A
PART NO. CZT01		UNITS: MM [INCHES]
DRAWN BY: ZRJ	APPROVED BY:	SCALE: 4:1

	MATERIAL	PLATING
SLEEVE	Brass	Nickel
TERMINAL	Brass	Nickel
BODY	PBT	

PC FILE NAME: CZT01

COPYRIGHT 2008 BY CUI INC.