

**PART NUMBER:** LME

**DESCRIPTION:** modular incremental encoder

The LME Series are high performance, low cost, 3 channel optical incremental encoders. Each encoder contains a LED source, an integrated circuit with detectors and circuitry, and an optical disc which rotates between the emitter and detector IC. These encoders can be quickly and easily mounted to a motor.



### ELECTRICAL SPECIFICATIONS

output waveform	Square wave
output signals	A, B, Z phase
current consumption	≤ 60 mA
output phase difference	90° ± 45°
supply voltage	5 V dc
output resolution (ppr)	1000, 1024, 2000, 2048 (other resolutions available upon request)
frequency response	0~100 KHz
output current	0~5 mA

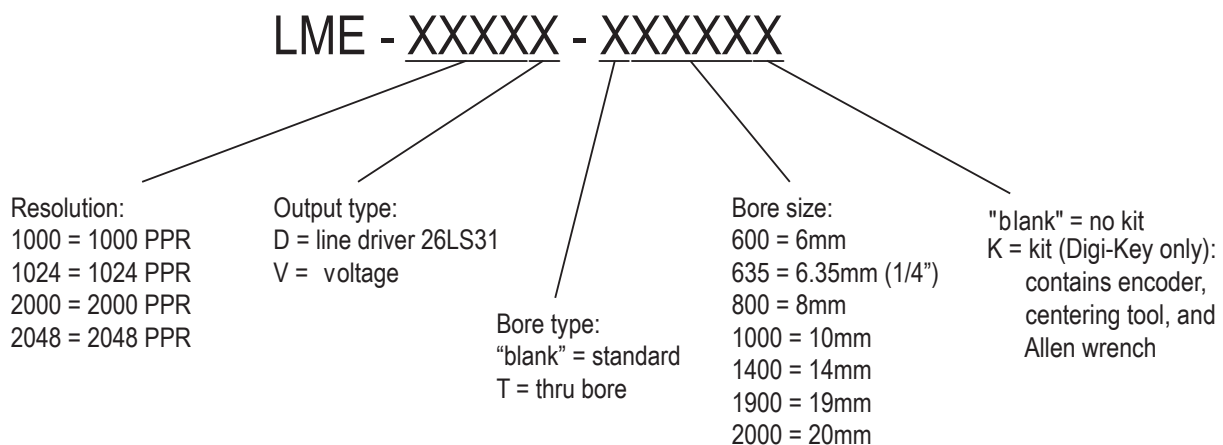
### MECHANICAL SPECIFICATIONS

rotor inertia of code-wheel	6.0x10 <sup>-8</sup> kgm <sup>2</sup>
shock resistance	980 m/s <sup>2</sup> ,6ms, 2 times each on XYZ
vibration proof	50 m/s <sup>2</sup> ,10~200 Hz, 2 hours each on XYZ
working life	MTBF ≥ 5000h(+25°C, 2000rpm)
weight	25g (with 0.5 meter cable)

### ENVIRONMENTAL SPECIFICATIONS

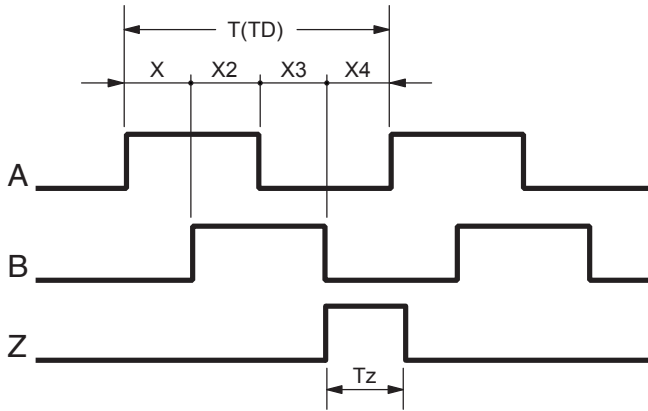
operating temp	-25° to +85° C
storage temp	-40° to +85° C
humidity	30~85% no condensation
protection	IP50

### ORDERING INSTRUCTIONS



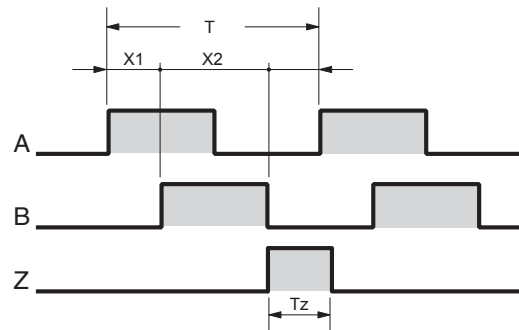
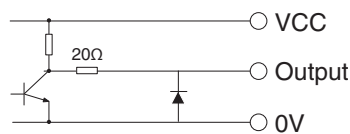
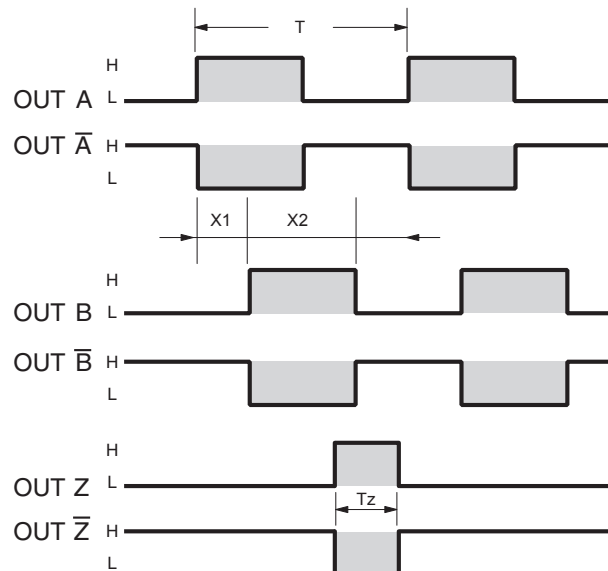
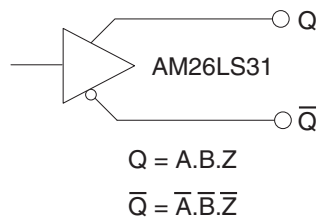
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**OUTPUT WAVEFORM**


- Square-wave accuracy:  $X_1 + X_2 = 1/2T \pm 1/12T$   
 $X_3 + X_4 = 1/2T \pm 1/12T$
- Pitch error of period:  $\pm 0.01T$
- Pitch error of phase position:  $\leq 1/18T$
- Z phase:  $T_z = 1/4T$  (1T, 1/2T, 1/4T...)
- Period of pulses:  $T = 360^\circ / N$  (N: output pulses)
- Signal accuracy:  $X_n = 1/4T \pm 1/12T$  (n=1, 2, 3, 4)

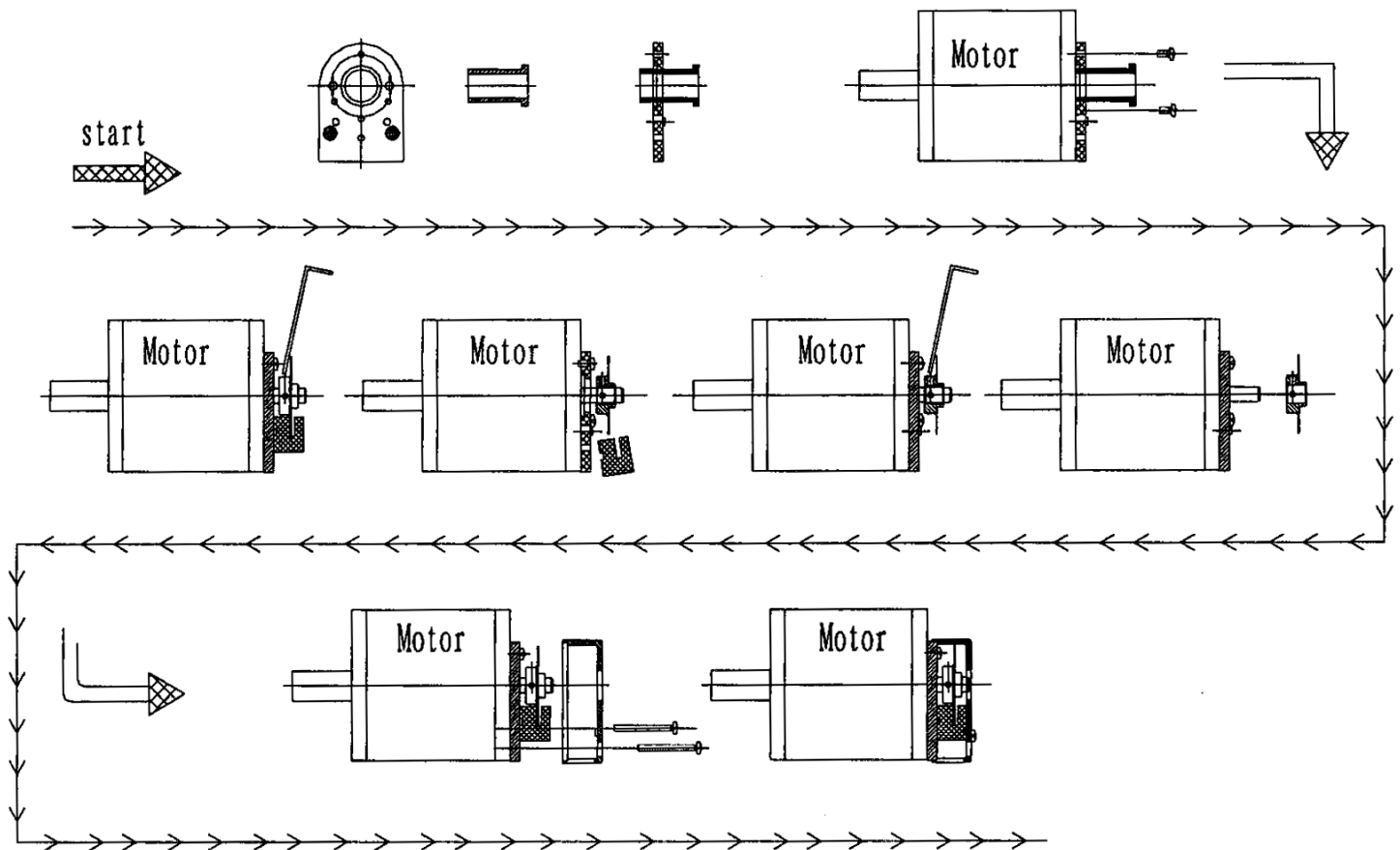
A leads B clockwise when viewing the encoder shaft end.  
 The position of Z phase against A, B phase is not specified.

**Voltage output**

**Line driver output**


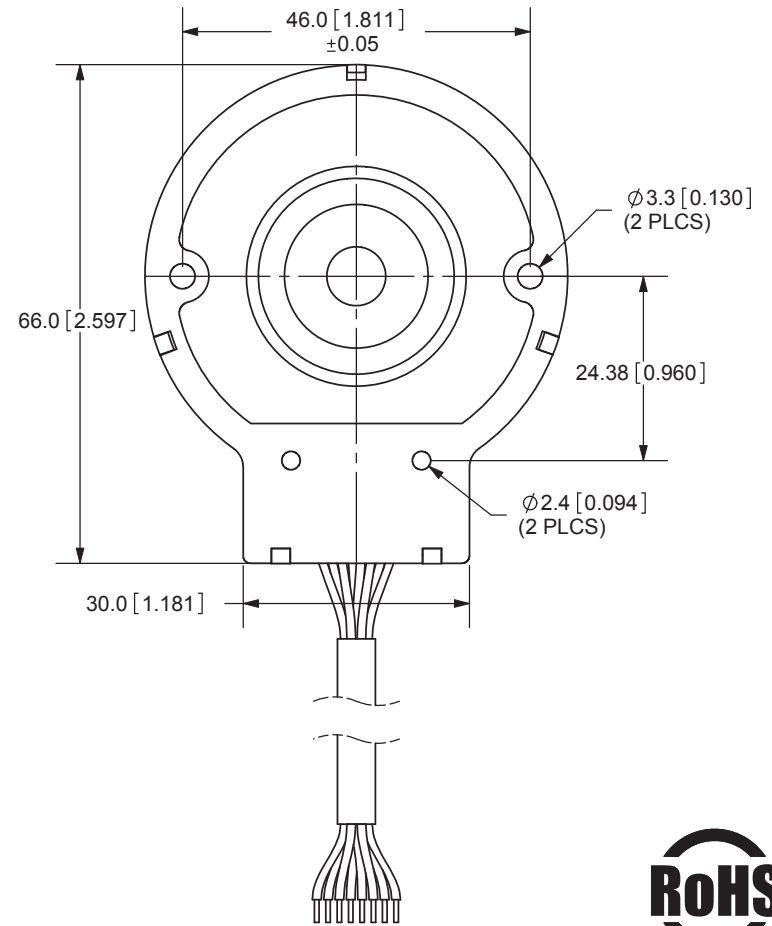
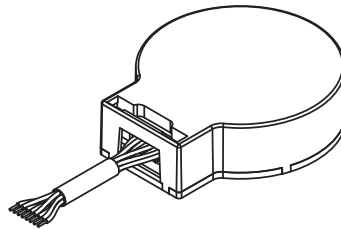
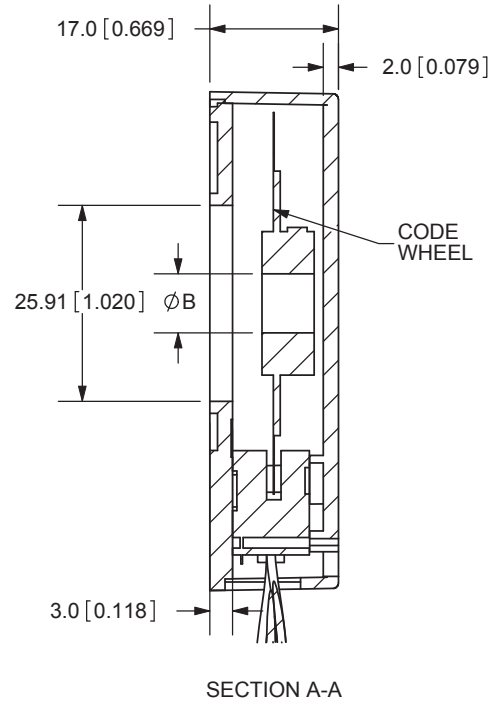
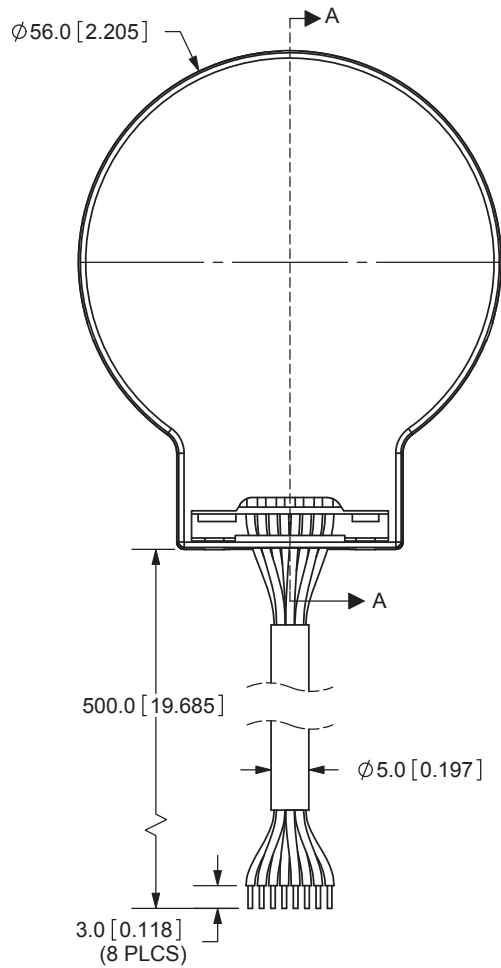
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**INSTALLATION DRAWING**



REV.	DESCRIPTION	DATE
A	NEW DRAWING	4/15/2008



ØB (bore size)	tolerance
6mm	-0.00 +0.033
6.35mm	
8mm	
10mm	
14mm	
19mm	
20mm	

TOLERANCE:  
±0.3mm UNLESS OTHERWISE  
SPECIFIED

Cable Code	1	2	3	4	5	6	7	8
Cable Color	Black	Red	Green	Brown	White	Grey	Yellow	Orange
Line Driver Output	0V	Vcc	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$
Cable Code	1	2	3	4	5	-	-	-
Cable Color	Black	Yellow	Green	Red	White	-	-	-
Voltage Output	0V	Z	A	Vcc	B	-	-	-



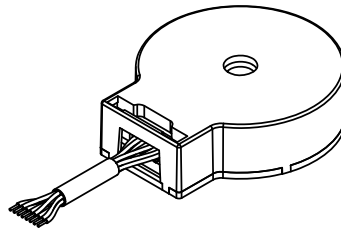
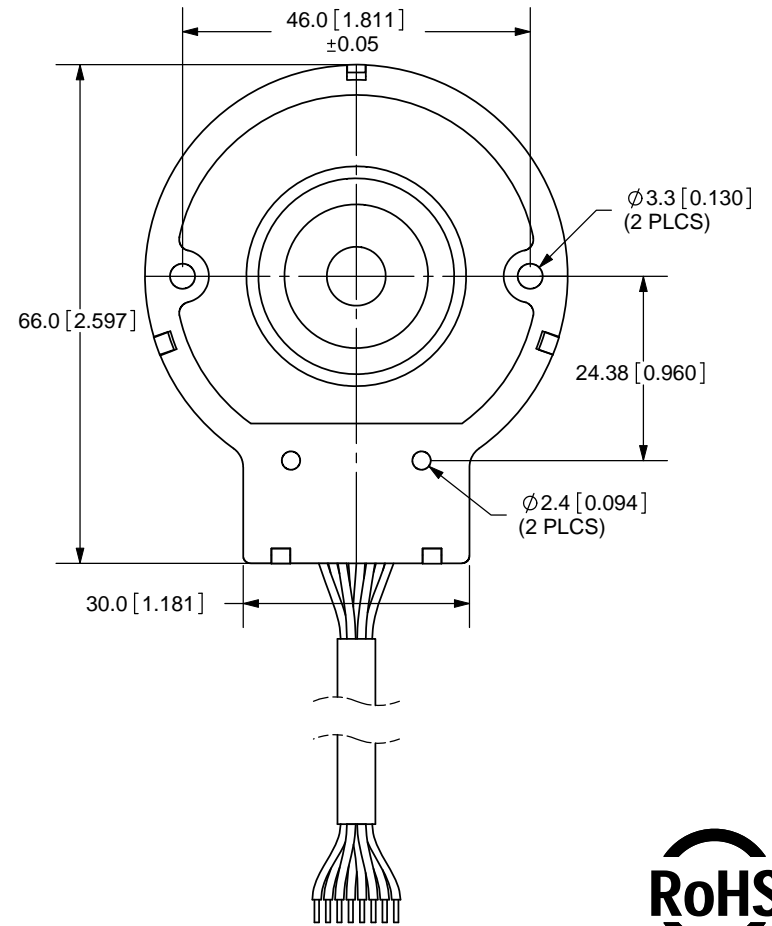
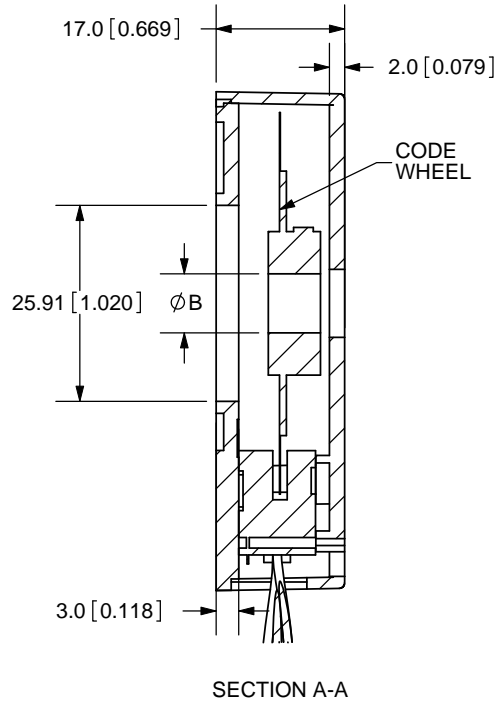
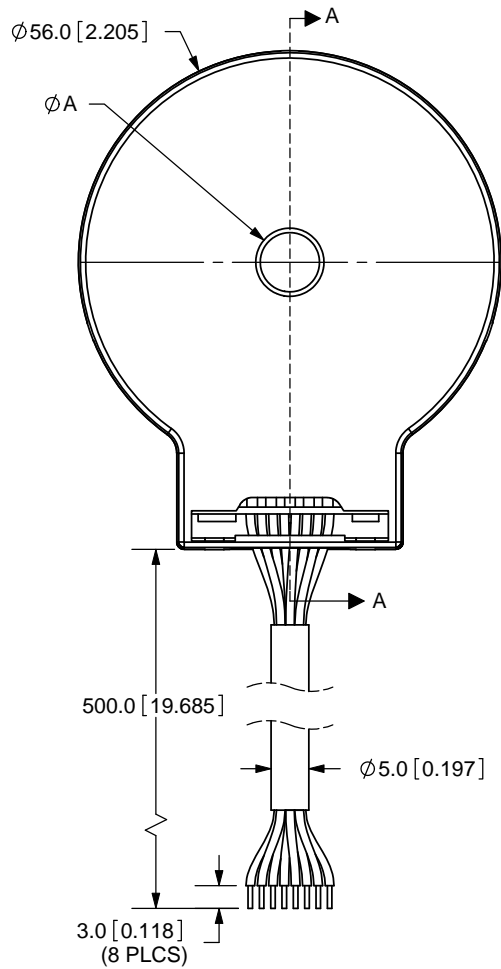
20050 SW 112th Ave.  
Tualatin, OR 97062  
Phone: 503-612-2300  
800-275-4899  
Fax: 503-612-2383  
Website: www.cui.com

TITLE:	LME - MODULAR OPTICAL ENCODER	REV:	A
PART NO.	LME - STANDARD BORE	UNITS:	MM [INCHES]
DRAWN BY:	ZRJ	APPROVED BY:	
		SCALE:	1:1

PC FILE NAME:  
LME - STANDARD BORE  
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THRU HOLE VERSION

REV.	DESCRIPTION	DATE
A	NEW DRAWING	4/15/2008



ØA (case opening)	ØB (bore size)	tolerance
10mm	6mm	-0.00 +0.033
	6.35mm	
	8mm	
11mm	10mm	
15mm	14mm	
20mm	19mm	
21mm	20mm	

TOLERANCE:  
±0.3mm UNLESS OTHERWISE  
SPECIFIED

Cable Code	1	2	3	4	5	6	7	8
Cable Color	Black	Red	Green	Brown	White	Grey	Yellow	Orange
Line Driver Output	0V	Vcc	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$
Cable Code	1	2	3	4	5	-	-	-
Cable Color	Black	Yellow	Green	Red	White	-	-	-
Voltage Output	0V	Z	A	Vcc	B	-	-	-



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Website: www.cui.com

TITLE: LME - MODULAR OPTICAL ENCODER	REV: A
PART NO. LME-THROUGH BORE	UNITS: MM [INCHES]
DRAWN BY: ZRJ	APPROVED BY:
	SCALE: 1:1