

**PART NUMBER:** AME**DESCRIPTION:** modular incremental encoder

The AME Series are high performance, low cost, 2 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 phase
output voltage	H: $\geq 85\% V_{cc}$ L: $\leq 0.3 V$
current consumption	$\leq 25 mA$
output phase difference	$90^\circ \pm 45^\circ$
supply voltage	5 V dc
output resolution (ppr)	100, 200, 256, 360, 400, 500, 512, 1000, 1024
frequency response	20 kHz (voltage output), 50kHz (line driver output)
output current	0~5 mA

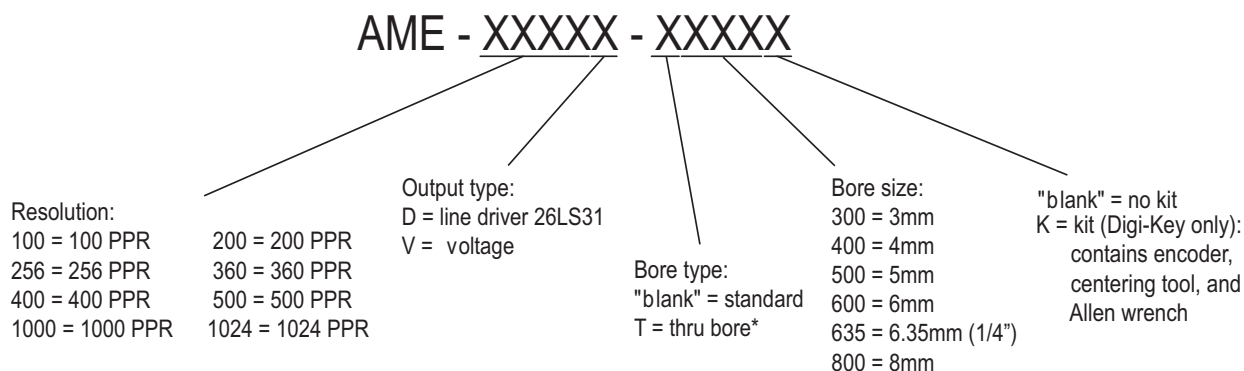
## MECHANICAL SPECIFICATIONS

rotor inertia of code-wheel	$6.0 \times 10^{-8} \text{ kgm}^2$
hollow shaft diameter	$\leq \varnothing 8\text{mm}$
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 $\geq 5000\text{h}$ (+25°C, 2000rpm)
weight	10g (with 0.5 meter cable)

## ENVIRONMENTAL SPECIFICATIONS

operating temp	-25° to +85° C
storage temp	-40° to +100° C
humidity	30~85% no condensation
protection	IP50

## ORDERING INSTRUCTIONS

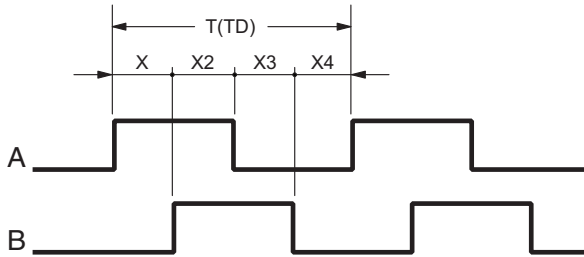


\*Removing the cap which covers the bore will turn the Standard style into a Thru Bore style

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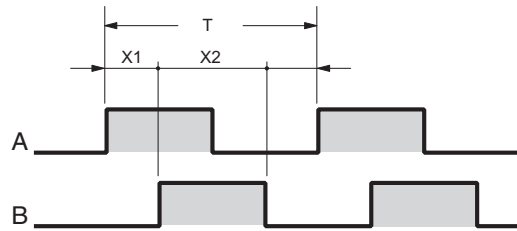
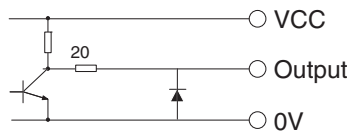
## OUTPUT WAVEFORM



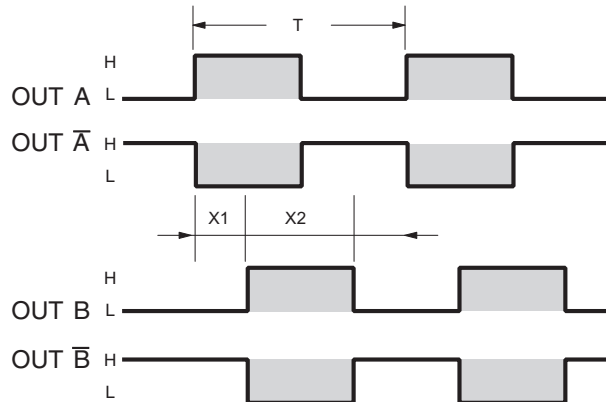
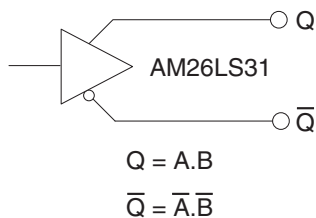
- Square-wave accuracy:  $X_1 + X_2 = 1/2T \pm 1/12T$   
 $X_3 + X_4 = 1/2T \pm 1/12T$
- Pitch error of period:  $\pm 0.01T$
- Pitch error of phase position:  $\leq 1/18T$
- Z phase:  $T_z = 1/4T$  (1T, 1/2T, 1/4T...)
- Period of pulses:  $T = 360^\circ / N$  (N: output pulses)
- Signal accuracy:  $X_n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

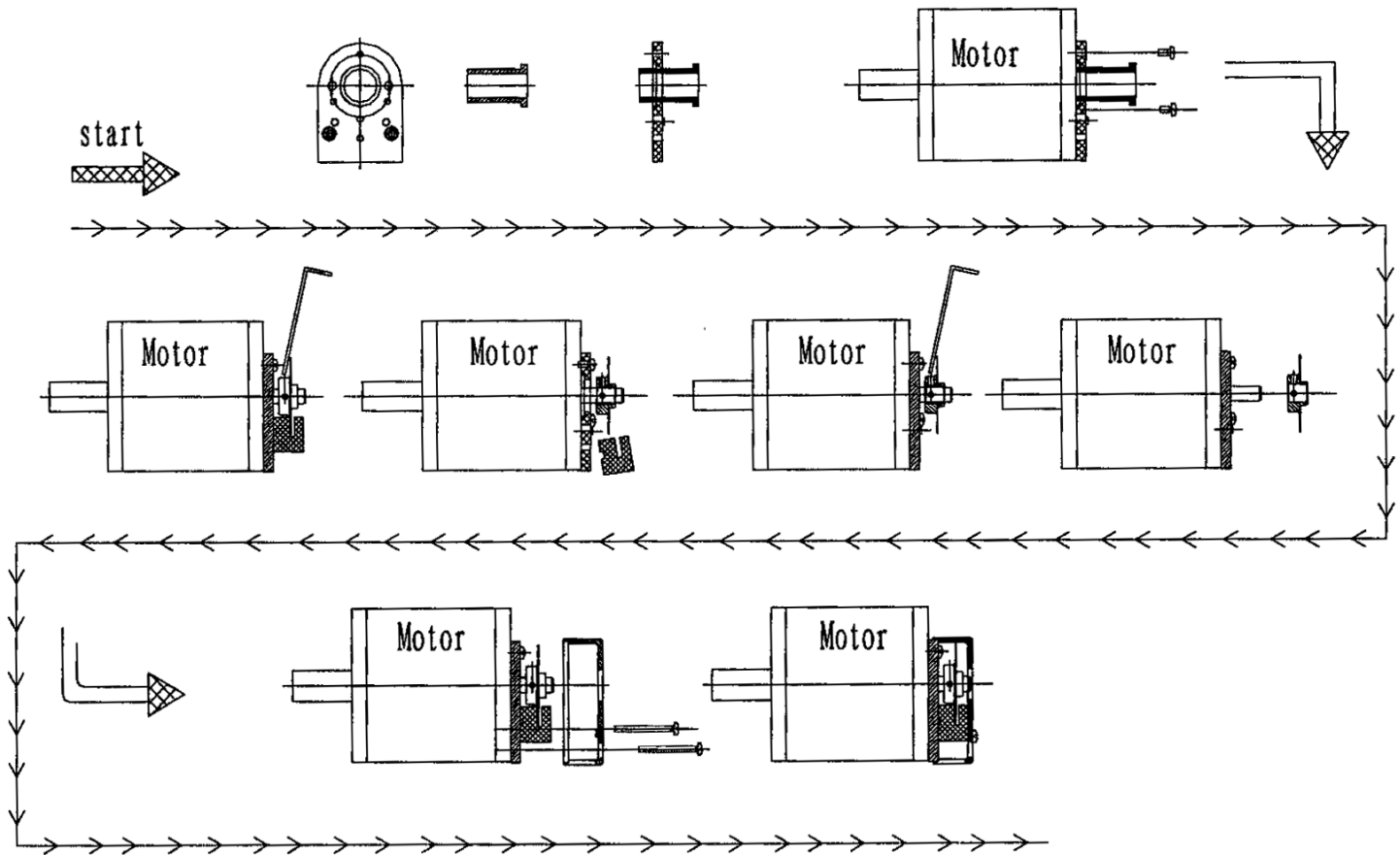




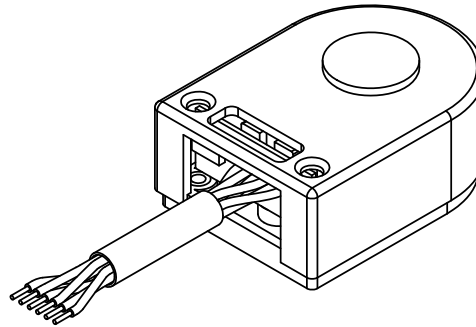
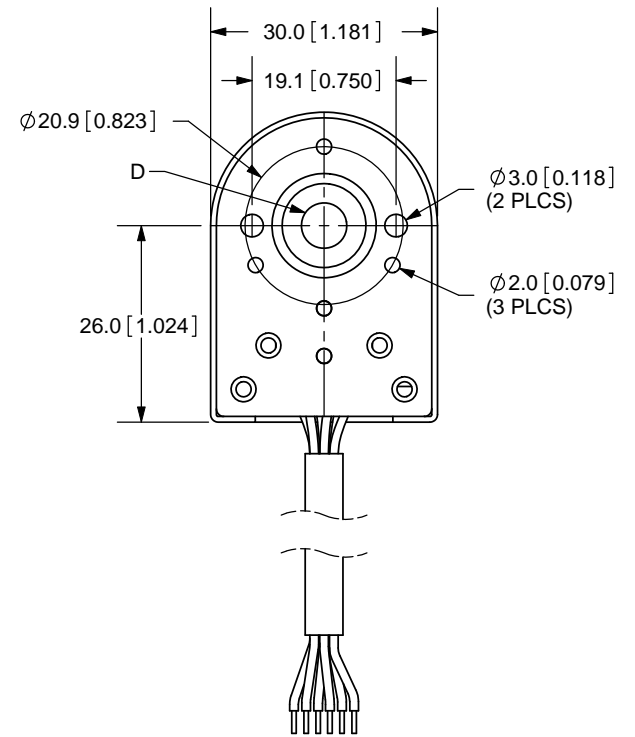
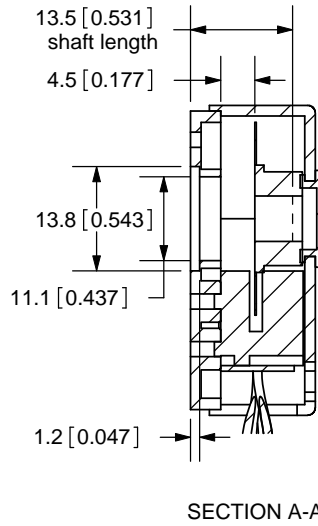
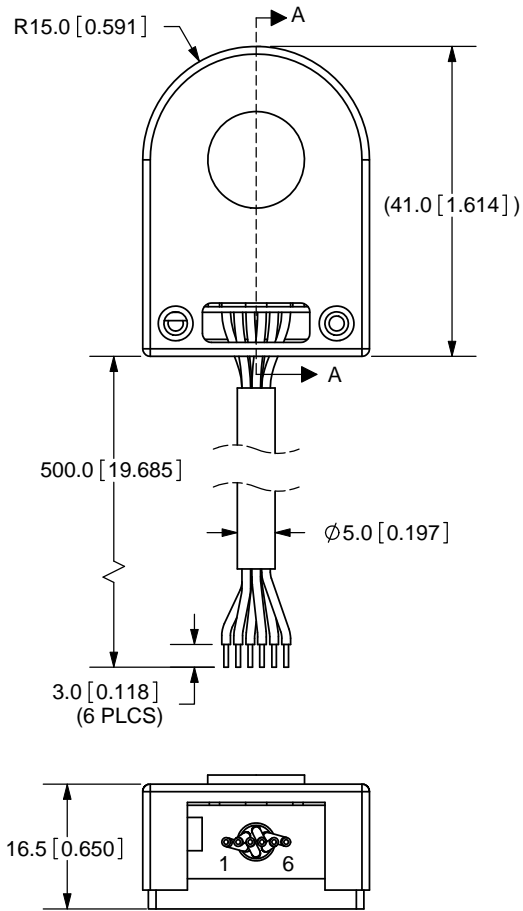
**PART NUMBER:** AME

**DESCRIPTION:** modular incremental encoder

**INSTALLATION DRAWING**



REV.	DESCRIPTION	DATE
A	NEW DRAWING	4/22/2008



TOLERANCE:  
±0.3mm UNLESS OTHERWISE  
SPECIFIED



ØD (bore size)
3mm
4mm
5mm
6mm
6.35mm
8mm

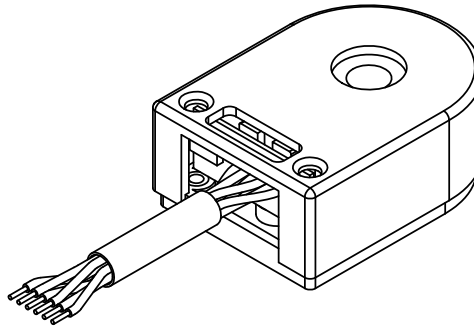
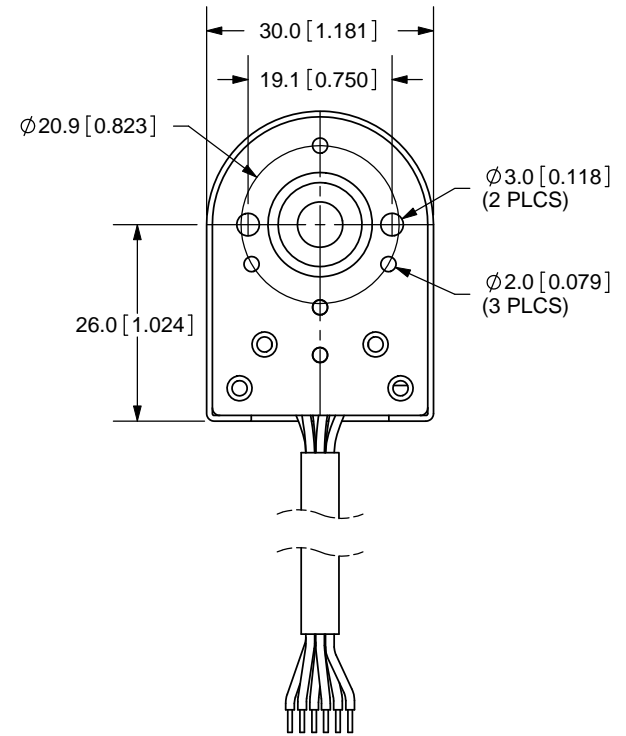
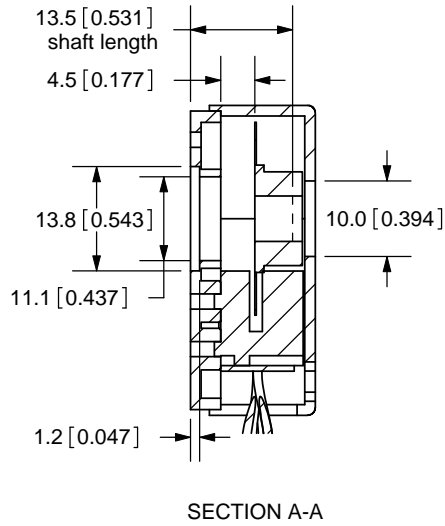
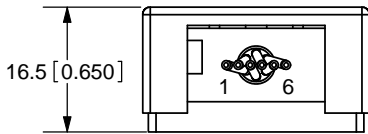
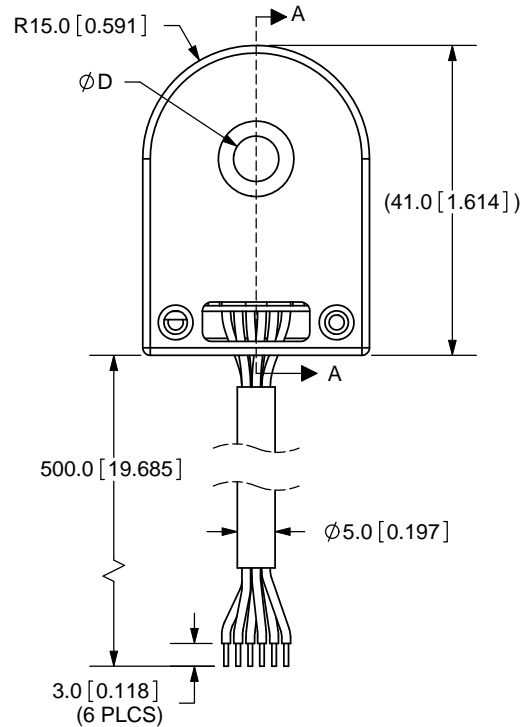
Cable Code	1	2	3	4	5	6
Cable Color	Black	Red	Green	Brown	White	Grey
Line Driver Output	0V	Vcc	A	A̅	B	B̅
Cable Code	1	2	3	4	5	-
Cable Color	Black	Green	Red	White	-	-
Voltage Output	0V	A	Vcc	B	N.C.	-



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

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

REV.	DESCRIPTION	DATE
A	NEW DRAWING	4/22/2008



TOLERANCE:  
±0.3mm UNLESS OTHERWISE  
SPECIFIED



ØD (bore size)
3mm
4mm
5mm
6mm
6.35mm
8mm

Cable Code	1	2	3	4	5	6
Cable Color	Black	Red	Green	Brown	White	Grey
Line Driver Output	0V	Vcc	A	$\bar{A}$	B	$\bar{B}$
Cable Code	1	2	3	4	5	-
Cable Color	Black	Green	Red	White	-	-
Voltage Output	0V	A	Vcc	B	N.C.	-



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