

Excellent Integrated System Limited

Stocking Distributor

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[CUI Inc.](#)
[BME-500D-800K](#)

For any questions, you can email us directly:
sales@integrated-circuit.com



PART NUMBER: BME

DESCRIPTION: modular incremental encoder

The BME Series are high performance, low cost, 2 or 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 phase or A, B, Z phase
output voltage	H: $\geq 85\% V_{cc}$ L: $\leq 0.3 V$
current consumption	$\leq 40 mA$
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	100 kHz
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^2 , 6ms, 2 times each on XYZ
vibration proof	50 m/s^2 , 10~200 Hz, 2 hours each on XYZ
working life	MTBF $\geq 5000\text{h}$ (+25°C, 2000rpm)
weight	20g (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

BMEX - XXXXX - XXXXX

Mounting base:
 "blank " = standard
 W = wide (46mm)

Resolution:
 100 = 100 PPR 200 = 200 PPR
 256 = 256 PPR 360 = 360 PPR
 400 = 400 PPR 500 = 500 PPR
 512 = 512 PPR 1000 = 1000 PPR †
 1024 = 1024 PPR †
 AB plus index pulse for all resolution

Output type:
 D = line driver 26LS31
 V = voltage

Bore type:
 "blank" = standard
 T = thru bore*

Bore size:
 300 = 3mm
 400 = 4mm
 500 = 5mm
 600 = 6mm
 635 = 6.35mm (1/4")
 800 = 8mm

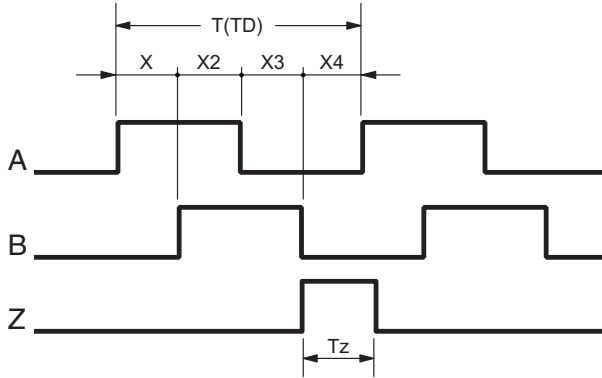
"blank" = no kit
 K = kit (Digi-Key only):
 contains encoder,
 centering tool, and
 Allen wrench

* Removing the cap which covers the bore will turn the Standard style into a Thru Bore style
 † index pulse not offered with this resolution

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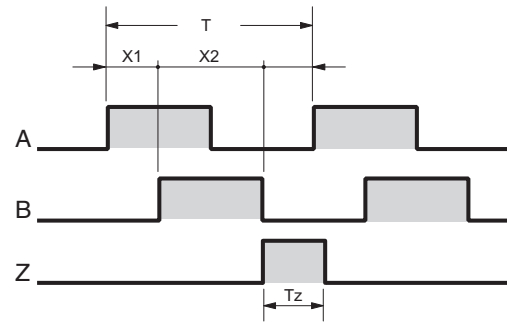
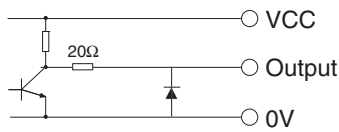
OUTPUT WAVEFORM



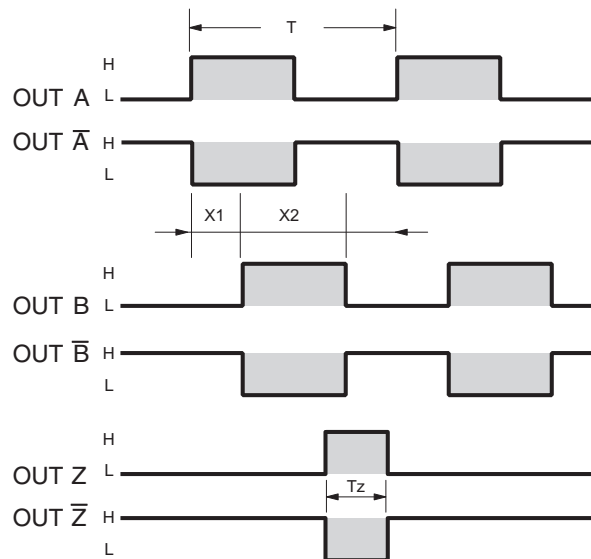
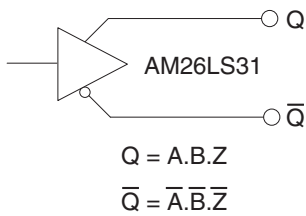
- Square-wave accuracy: $X_1 + X_2 = 1/2T \pm 1/12T$
 $X_3 + X_4 = 1/2T \pm 1/12T$
- Pitch error of period: $\pm 0.01T$
- Pitch error of phase position: $\leq 1/18T$
- Z phase: $T_z = 1/4T$ (1T, 1/2T, 1/4T...)
- Period of pulses: $T = 360^\circ / N$ (N: output pulses)
- Signal accuracy: $X_n = 1/4T \pm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



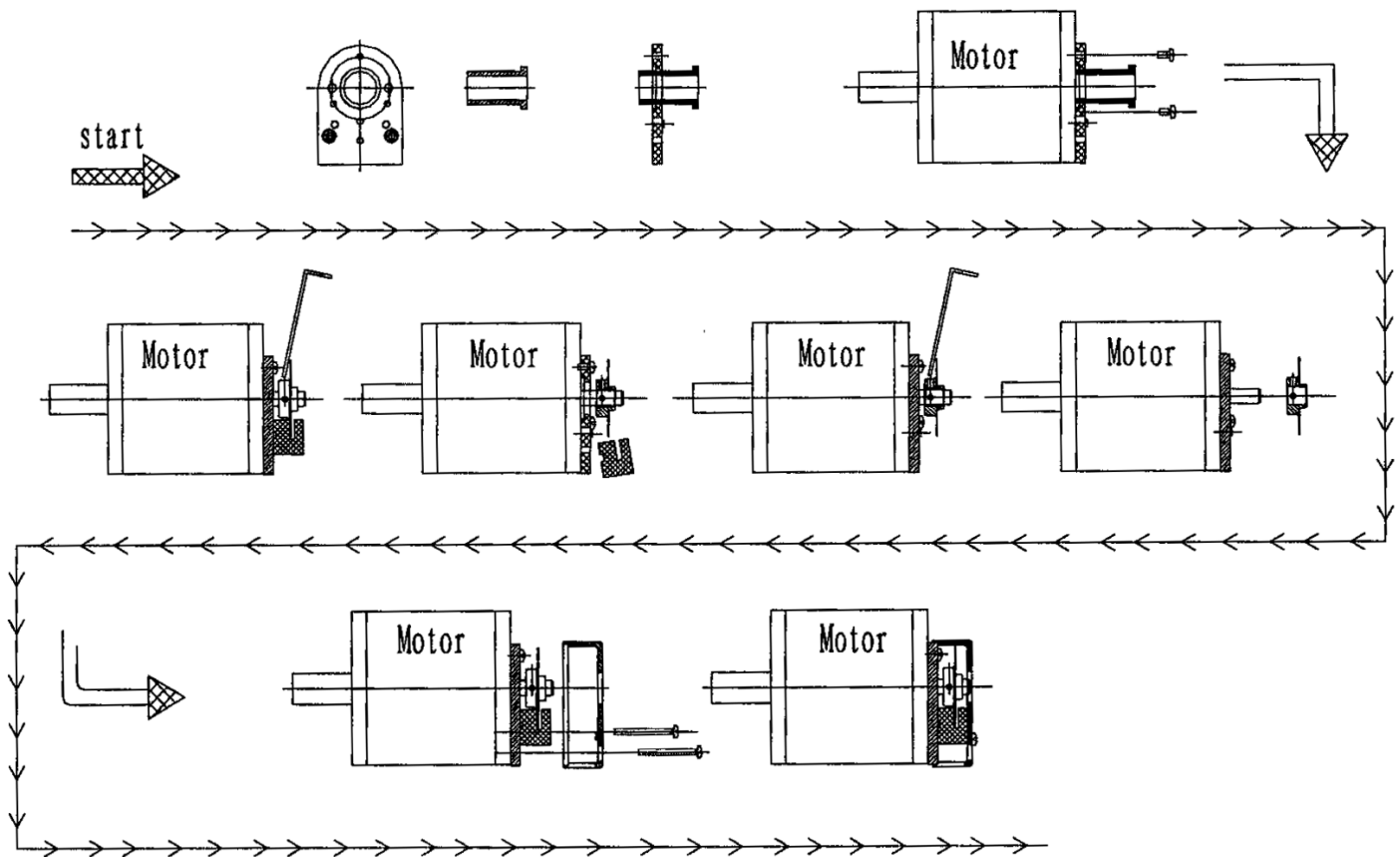
Line driver output



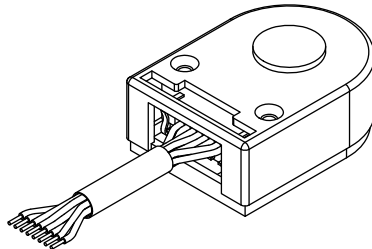
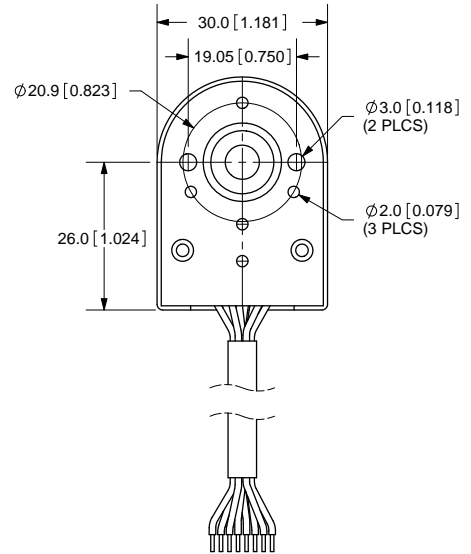
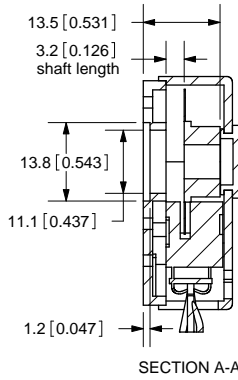
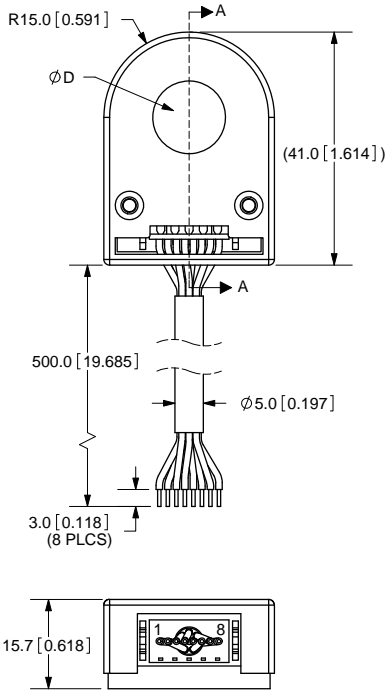
PART NUMBER: BME

DESCRIPTION: modular incremental encoder

INSTALLATION DRAWING



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



TOLERANCE:
±0.3mm UNLESS OTHERWISE
SPECIFIED



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Tualatin, OR 97062
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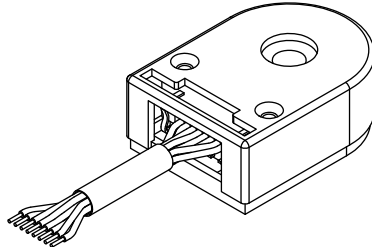
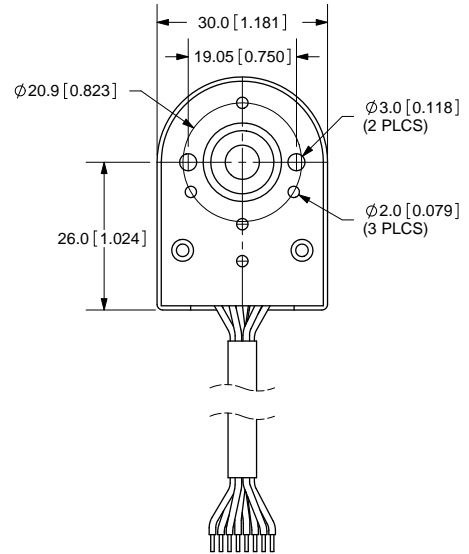
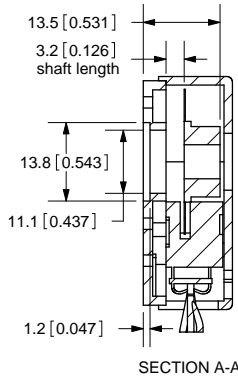
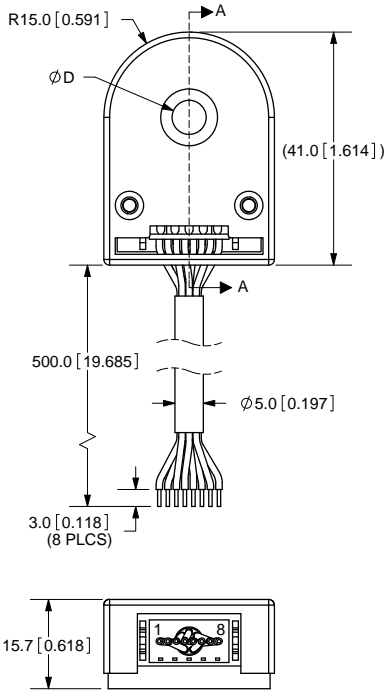
ØD (bore size)
3mm
4mm
5mm
6mm
6.35mm
8mm

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	-	-	-

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

PC FILE NAME:
BME - STANDARD BORE
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REV.	DESCRIPTION	DATE
A	NEW DRAWING	4/22/2008



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±0.3mm UNLESS OTHERWISE
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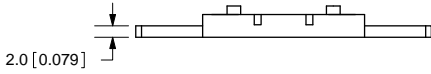
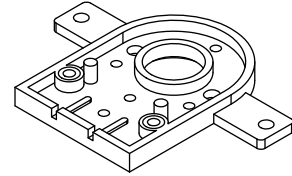
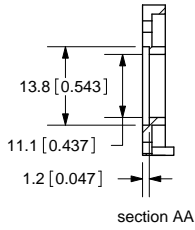
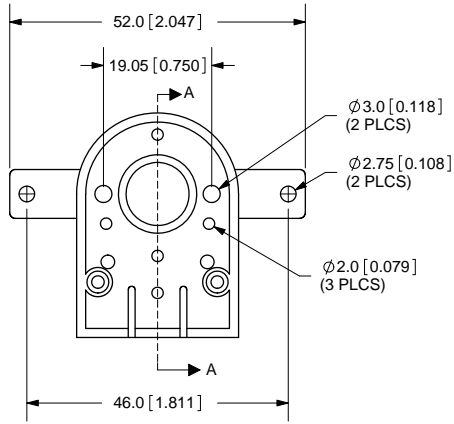
ØD (bore size)
3mm
4mm
5mm
6mm
6.35mm
8mm

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	-	-	-

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

PC FILE NAME:
BME - THROUGH BORE COPYRIGHT 2008 BY CUI, INC.

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



TOLERANCE:
 $\pm 0.3\text{mm}$ UNLESS OTHERWISE
 SPECIFIED



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TITLE: BME - OPTIONAL WIDE BASE		REV: A
PART NO. BME - WIDE BASE	UNITS: MM [INCHES]	
DRAWN BY: ZRJ	APPROVED BY:	SCALE: 1:1