



**PART NUMBER:** MES12

**DESCRIPTION:** incremental encoder

**ELECTRICAL SPECIFICATIONS**

output waveform	Square wave
output signals	A, B, Z phase
current consumption	≤40 mA
frequency response	0~100 KHz
output phase difference	A, B phase difference 90° ± 45° (T/4±T/8) Z phase T±T/2 (see output waveform)
supply voltage	5 V dc ± 10%
output resolution (ppr)	60, 100, 125, 200, 256, 300, 360, 500, 600, 900, 1000, 1500, 1800, 2000, 2048
waveform rise/fall time	2μ or less (output cable 1m or less)

**MECHANICAL SPECIFICATIONS**

max shaft load,	radial:	1.9N (200gf)	0.98N (100gf) (1500-2048 ppr)
	axial:	1.9N (200gf)	0.98N (100gf) (1500-2048 ppr)
starting torque	1 x 10 <sup>3</sup> N·m (10 gf·cm)		
max rotational speed	6000 RPM		
shock resistance	500m/s <sup>2</sup> (50G) 3 times each on XYZ		
vibration proof	55 Hz, double amplitude 1.5mm, 2 hours each on XYZ		
weight	40 g (with 1m cable)		
cable	3mm Outside diameter 5-core vinyl wire, insulated shield cable (length 1m)		

**ENVIRONMENTAL SPECIFICATIONS**

operating temp	-10° to +70° C
storage temp	-20° to +80° C
humidity	RH 35%~90% non collecting

**ORDERING INSTRUCTIONS**

MES12 - XXXXPX

Resolution (PPR):

60 = 60 PPR	600 = 600 PPR
100 = 100 PPR	900 = 900 PPR
125 = 125 PPR	1000 = 1000 PPR
200 = 200 PPR	1500 = 1500 PPR
256 = 256 PPR	1800 = 1800 PPR
300 = 300 PPR	2000 = 2000 PPR
500 = 500 PPR	2048 = 2048 PPR

Output Circuit:

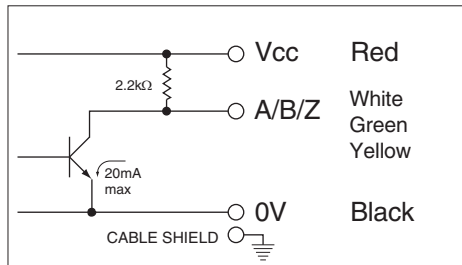
"no entry" = TTL voltage output  
C = Open collector output  
E = Line driver output

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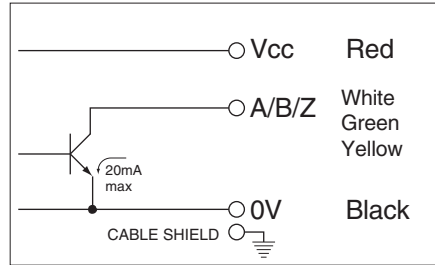
**DESCRIPTION:** incremental encoder

### CIRCUIT CONNECTIONS

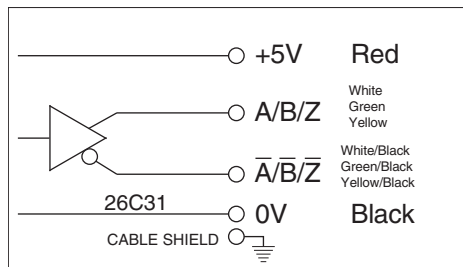
Voltage Output



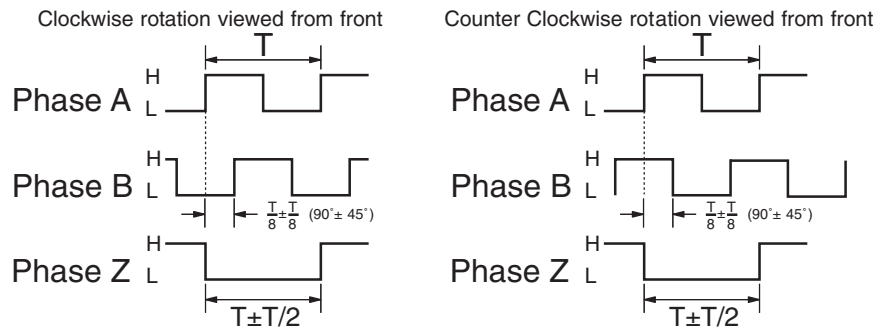
Open Collector Output (C)



Line Drive Output (E)

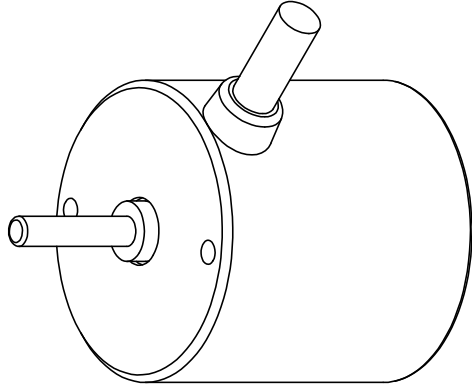
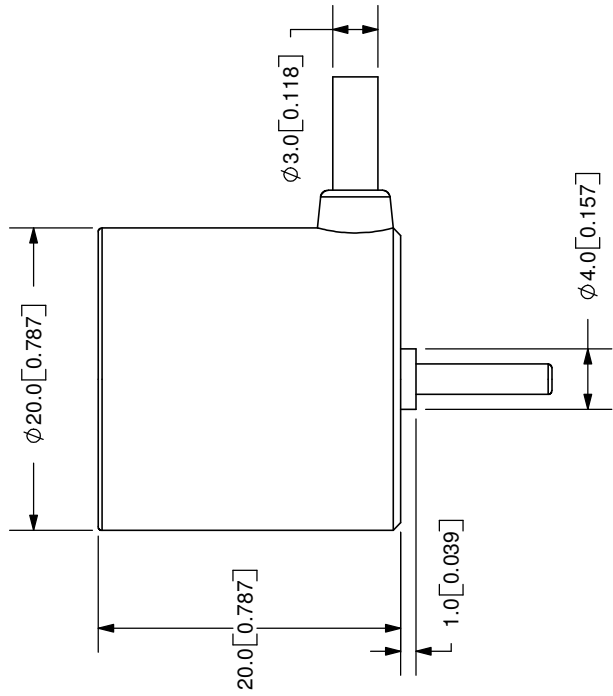
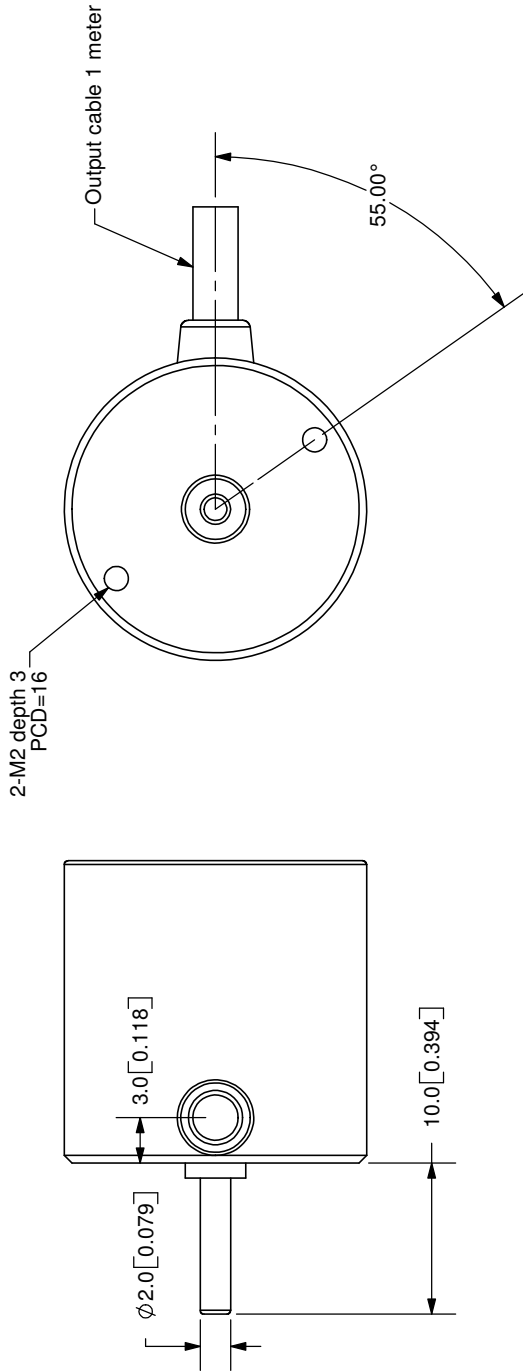


### OUTPUT WAVEFORM



The position of Z phase against A, B phase is not specified

REV.	DESCRIPTION	DATE
A	NEW DRAWING	7/27/2007



TOLERANCE:  
±0.3mm UNLESS OTHERWISE  
SPECIFIED



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TITLE: Incremental Encoder	REV: A
PART NO: MES12	UNITS: MM [INCHES]
DRAWN BY: JMS	APPROVED BY:
	SCALE: 2:1

Cable Color	Red	White	Green	Yellow	Black	-	-	-
Output Type	Power	A-Phase	B-Phase	Z-Phase	0V	-	-	-

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PC FILE NAME: MES12