



**PART NUMBER:** MES12-PS

**DESCRIPTION:** sine wave encoder

**ELECTRICAL SPECIFICATIONS**

output waveform	A, B phase sine wave, Z phase square wave
output signals	A, B, Z phase
current consumption	≤40 mA
frequency response	0~50 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)	1000, 1500, 1800, 2000, 2500
waveform rise/fall time	2 μs or less (output cable 1 m or less)

**MECHANICAL SPECIFICATIONS**

max shaft load, radial:	0.98 N (100 gf)
axial:	0.98 N (100 gf)
starting torque	1 x 10 <sup>-3</sup> N·m (20 gf·cm)
max rotational speed	6000 RPM
shock resistance	500 m/s <sup>2</sup> (50 G), 3 times each on XYZ
vibration proof	55 Hz, double amplitude 1.5mm, 2 hours each on XYZ
weight	40g
cable	3 mm outside diameter, 5 core vinyl wire insulated shield cable (1m)

**ENVIRONMENTAL SPECIFICATIONS**

operating temp	0° ~ +50° C
storage temp	-20° ~ +80° C
humidity	RH 35%~90% non collecting

**ORDERING INSTRUCTIONS**

MES12 - XXXXPS

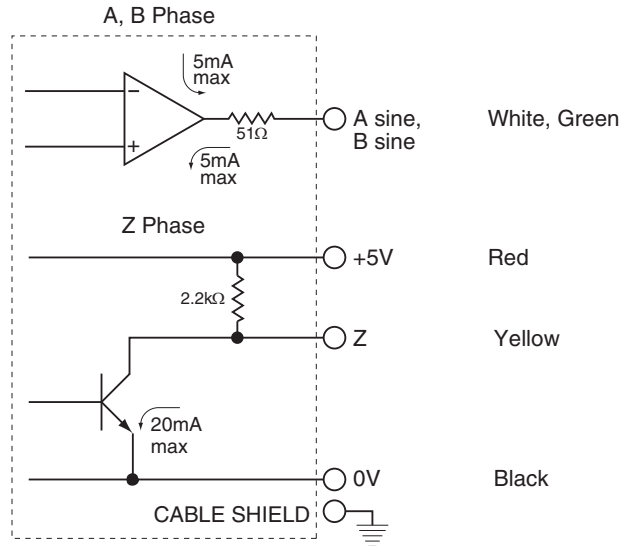
Resolution (PPR):

1000 = 1000 PPR      2000 = 2000 PPR  
1500 = 1500 PPR      2500 = 2500 PPR  
1800 = 1800 PPR

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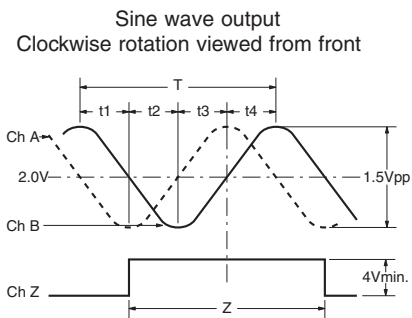
**DESCRIPTION:** sine wave encoder

**CIRCUIT CONNECTIONS**



A capacitor (0.1 μF) is connected between 0 V and FG (frame ground).

**OUTPUT WAVEFORM**



$$T = 360^\circ / \text{divisions} \quad t1, t2, t3, t4 = \frac{T}{4} \pm \frac{T}{8}$$

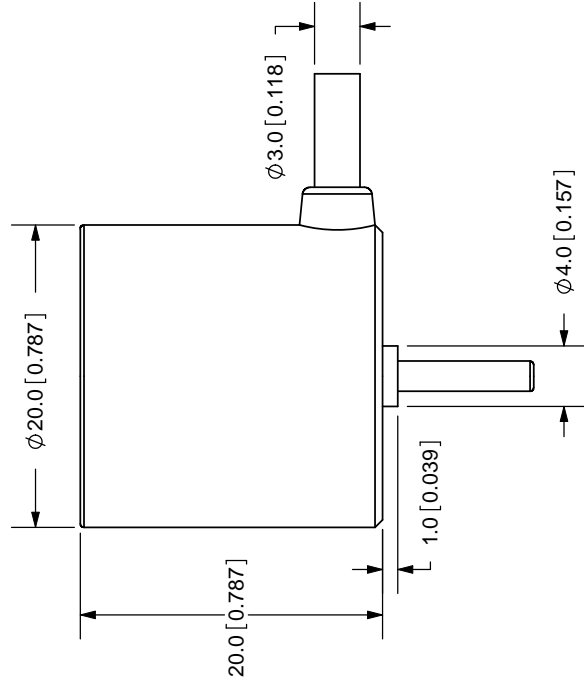
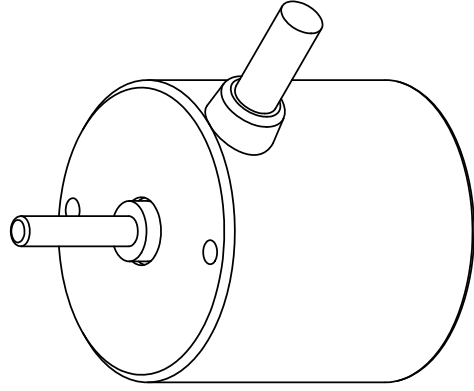
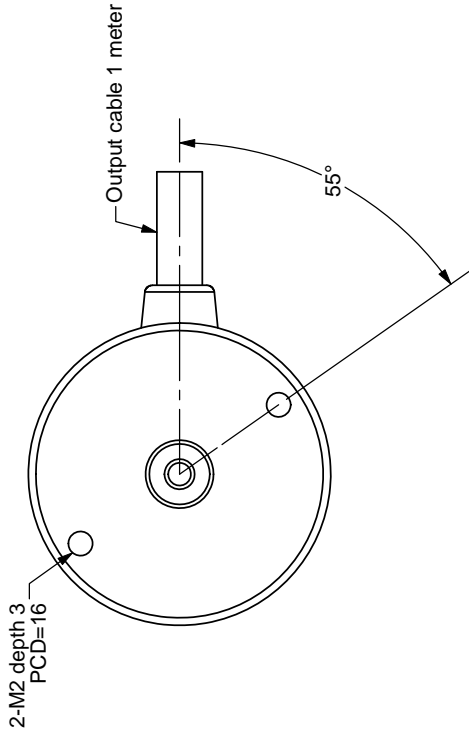
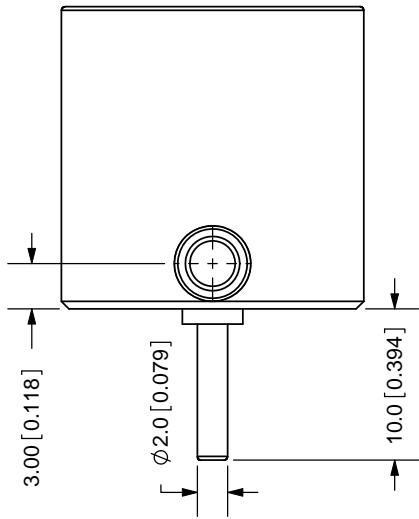
$$Z = T \pm 0.50T$$

M = M X 20% or less

- Amplitude variation rate
- Amplitude waviness
- A/B Phase amplitude ratio

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-PS	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-PS