



**PART NUMBER:** MES9-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 ~ 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)	1000
waveform rise/fall time	2 μs or less (output cable 140 mm 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 (10 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	10g
cable	vinyl wire (AWG30), 140 mm

## ENVIRONMENTAL SPECIFICATIONS

operating temp	0° ~ +60° C
storage temp	-20° ~ +80° C
humidity	RH 35%~90% non collecting

## ORDERING INSTRUCTIONS

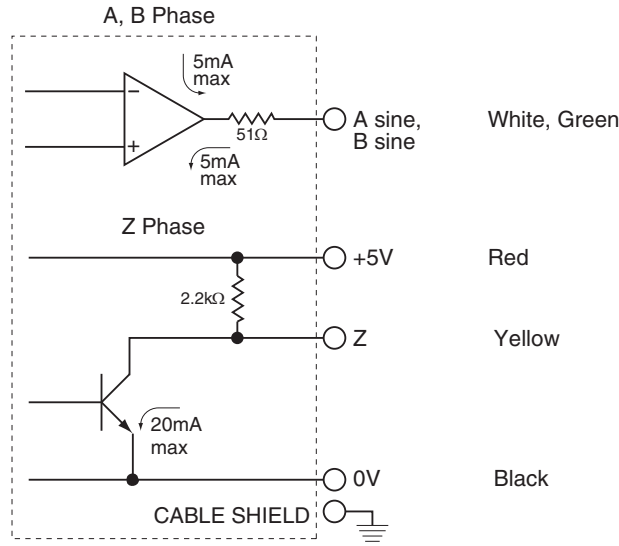
MES9 - XXXXPS

Resolution (PPR):  
1000 = 1000PPR

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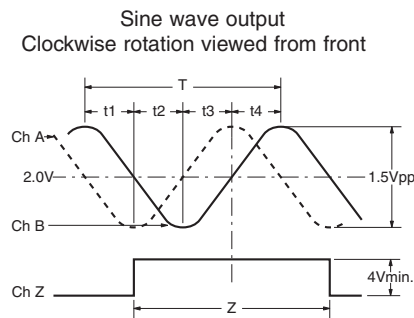
**DESCRIPTION:** sine wave encoder

### CIRCUIT CONNECTIONS



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

### OUTPUT WAVEFORM



$$T = 360^\circ / \text{divisions} \quad t_1, t_2, t_3, t_4 = \frac{T}{4} \pm \frac{T}{8}$$

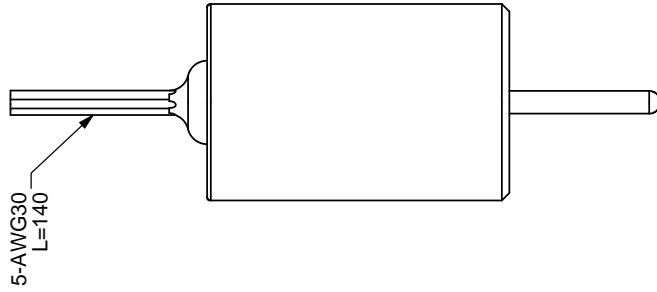
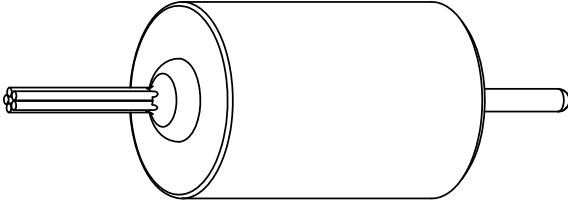
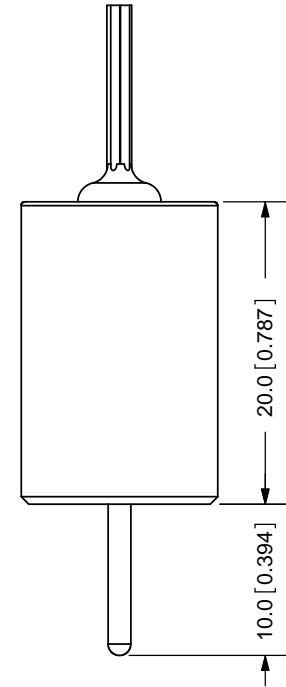
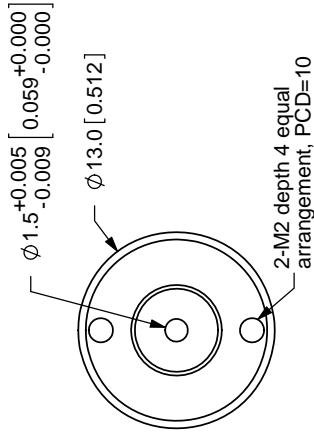
$$Z = T \pm 0.50T$$

$$M = M \times 20\% \text{ or less}$$

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: MES9-PS UNITS: MM [INCHES]

DRAWN BY: JMS APPROVED BY: SCALE: 2:1

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

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PC FILE NAME:  
MES9-PS