



**PART NUMBER:** MEH12-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°<br>(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                  | 40 g   |
| 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**

MEH12 - (X)XXXXPS

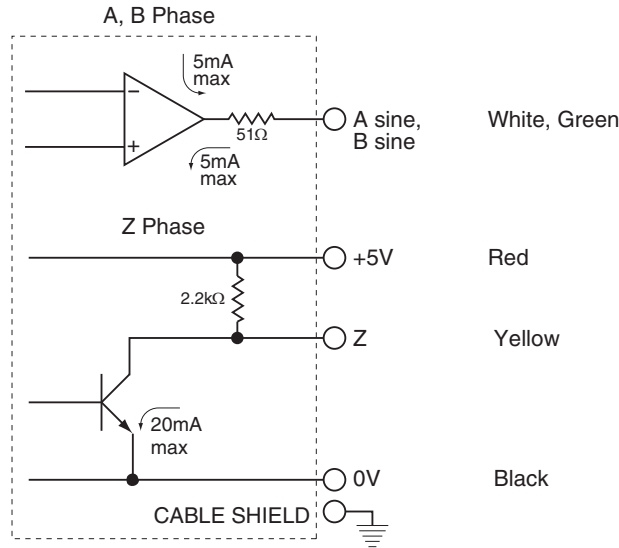
Bore options:  
1.5 = 1.5 mm  
2 = 2 mm  
3 = 3 mm

Resolution (PPR):  
1000 = 1000 PPR  
1500 = 1500 PPR  
2000 = 2000 PPR  
2500 = 2500 PPR  
1800 = 1800 PPR

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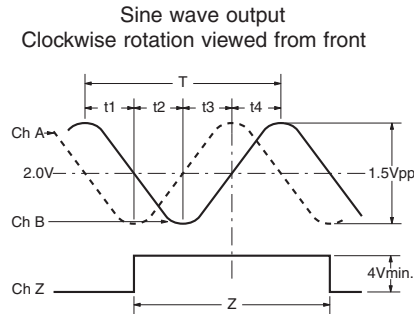
**DESCRIPTION:** sine wave encoder

**CIRCUIT CONNECTIONS**



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

**OUTPUT WAVEFORM**



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

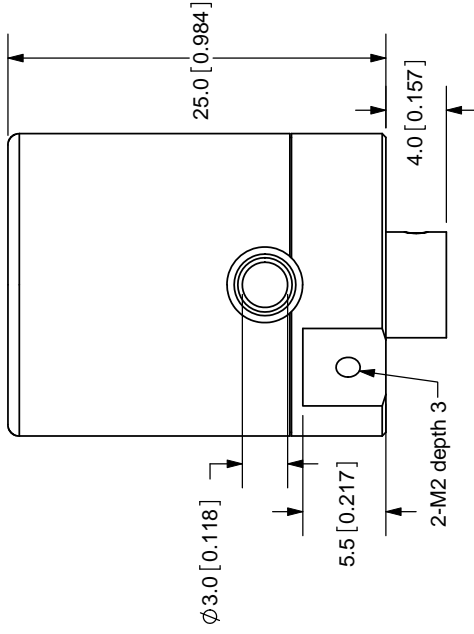
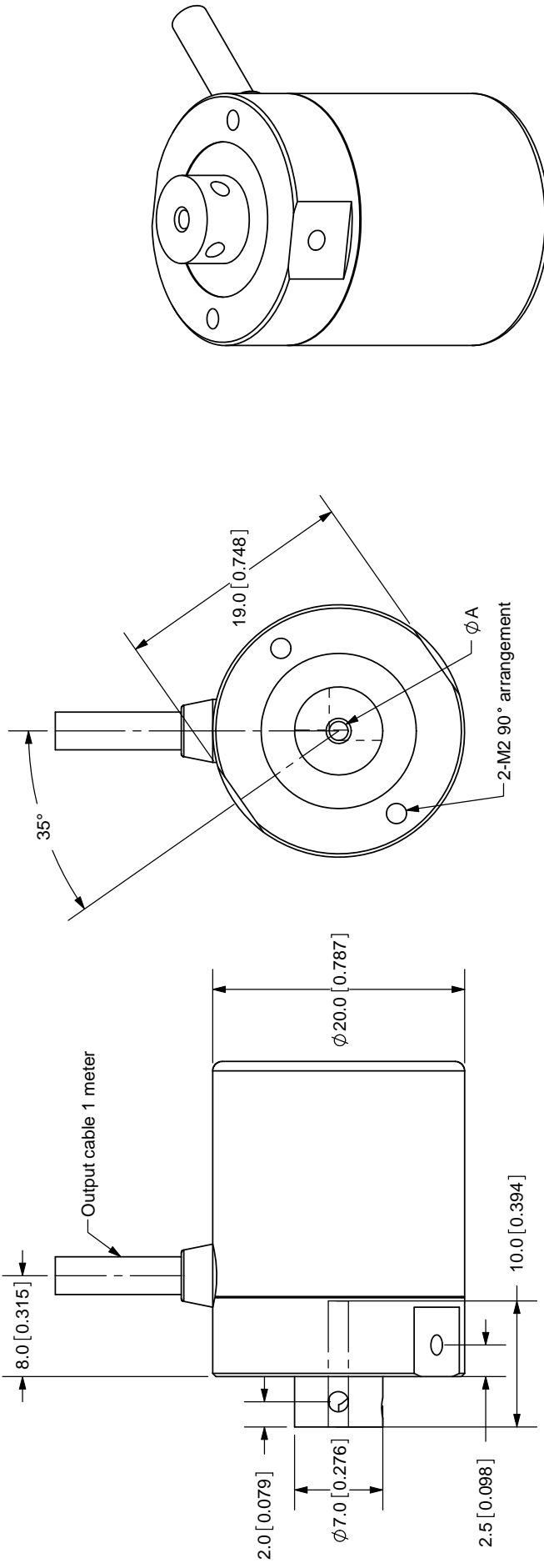
$$Z = T \pm 0.50T$$

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 |



| Hole $\phi$ A |            |
|---------------|------------|
| $\phi 1.5$    | $\phi 3.0$ |
| -             | -          |
| -             | -          |

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

PC FILE NAME: MEH12-PS  
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TOLERANCE:  $\pm 0.3$ mm UNLESS OTHERWISE SPECIFIED



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|                            |                    |
|----------------------------|--------------------|
| TITLE: Incremental Encoder | REV: A             |
| PART NO: MEH12-PS          | UNITS: MM [INCHES] |
| DRAWN BY: JMS              | APPROVED BY:       |
|                            | SCALE: 2:1         |