

**PART NUMBER:** MES40

**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 $90^\circ \pm 45^\circ$<br>(T/4±T/8) Z phase $T \pm T/2$ (see output waveform)                   |
| supply voltage          | 5 V dc $\pm 10\%$ (line driver output only), 5~12 V dc $\pm 10\%$ ,<br>24 V dc $\pm 10\%$ (open collector output only) |
| output resolution (ppr) | 100, 200, 300, 360, 400, 500, 512, 600, 1000, 1024, 2000, 3600, 5000, 10000  |

### MECHANICAL SPECIFICATIONS

|                         |   |
|-------------------------|---|
| max shaft load, radial: | 49N (5kgf)  |
| axial:                  | 29.4N (3kgf)  |
| starting torque         | $2 \times 10^{-3}$ N·m (20 gf·cm)<br>$5 \times 10^{-3}$ N·m (50 gf·cm) (drip-proof) |
| max rotational speed    | 6000 RPM  |
| shock resistance        | 500 m/s <sup>2</sup> (50G), 3 times each on XYZ                                     |
| vibration proof         | 55 Hz, double amplitude 1.5mm, 2 hours each on XYZ                                  |
| weight                  | 200g (with 1m cable)  |
| cable                   | 4.2mm outside diameter, 5 core vinyl wire insulated shield cable (1m)               |

### ENVIRONMENTAL SPECIFICATIONS

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

### ORDERING INSTRUCTIONS

## MES40 - XXXXP - XX

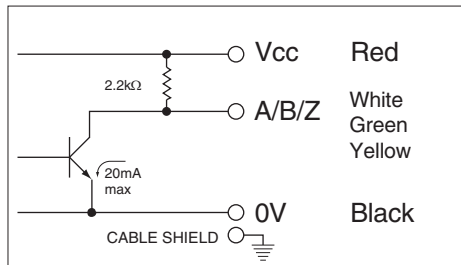
|  |  |   |
|--|--|---|
| <p>Resolution (PPR):</p> <p>100 = 100 PPR      600 = 600 PPR<br/>         200 = 200 PPR      1000 = 1000 PPR<br/>         300 = 300 PPR      1024 = 1024 PPR<br/>         360 = 360 PPR      2000 = 2000 PPR<br/>         400 = 400 PPR      3600 = 3600 PPR<br/>         500 = 500 PPR      5000 = 5000 PPR<br/>         512 = 512 PPR      10000 = 10000 PPR</p> | <p>Output Circuit:</p> <p>"no entry" = TTL voltage output<br/>         C = Open collector output<br/>         E = Line driver output</p> | <p>Input Voltage:</p> <p>1 = 5V dc <math>\pm 10\%</math><br/>         (line driver output only)<br/>         3 = 5 ~ 12V dc <math>\pm 10\%</math><br/>         4 = 24V dc <math>\pm 10\%</math><br/>         (open collector output only)</p> |
|--|--|---|

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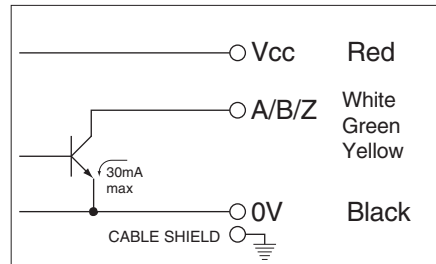
**DESCRIPTION:** incremental encoder

## CIRCUIT CONNECTIONS

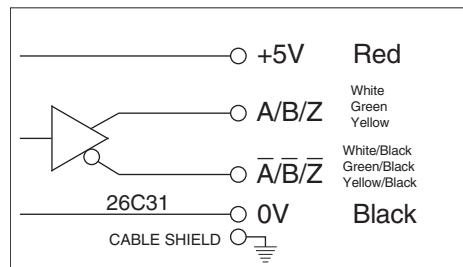
Voltage Output



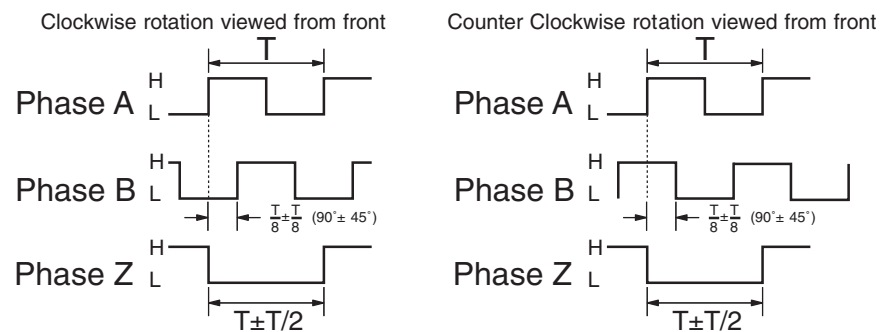
Open Collector Output (C)



Line Drive Output (E)

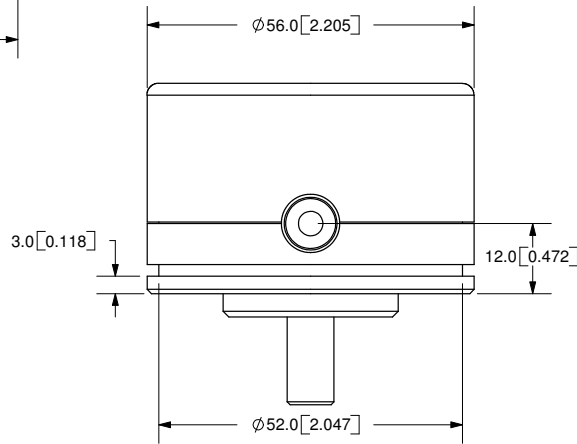
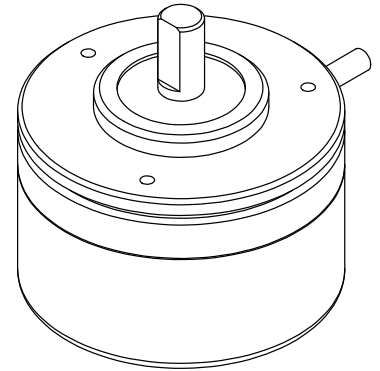
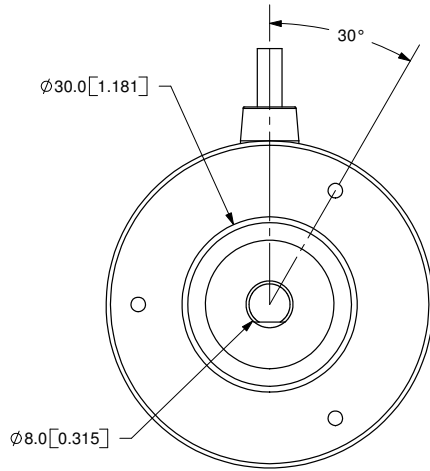
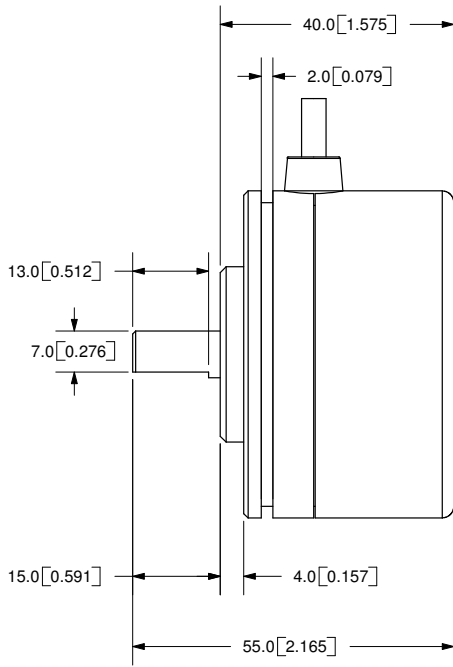


## OUTPUT WAVEFORM



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

| REV. | DESCRIPTION | DATE      |
|------|-------------|-----------|
| A    | NEW DRAWING | 7/30/2007 |



TOLERANCE:  
±0.3mm UNLESS OTHERWISE  
SPECIFIED



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|                            |                    |            |
|----------------------------|--------------------|------------|
| TITLE: Incremental Encoder |                    | REV: A     |
| PART NO. MES40             | UNITS: MM [INCHES] |            |
| DRAWN BY: JMS              | APPROVED BY:       | SCALE: 1:1 |

PC FILE NAME:  
MES40

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