

The E20 Series was developed to provide high precision angular position signals at an affordable price.

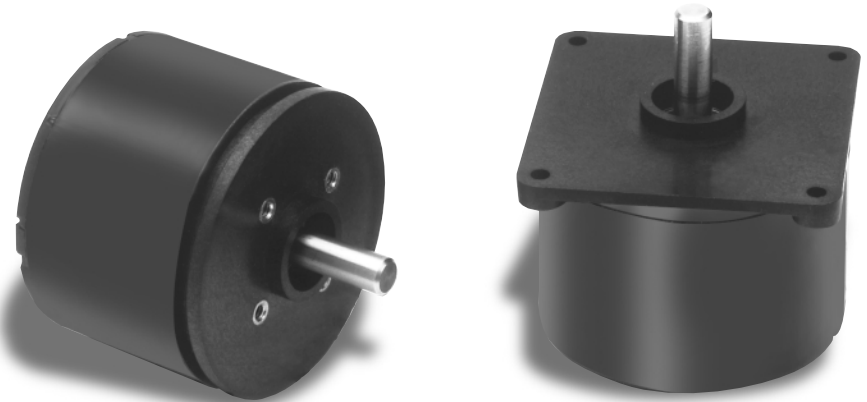
The design consists of a patented glass disc and hub assembly, focused infrared light source, a proprietary monolithic photodetector array, and signal conditioning electronics.

The models E202 and E203 encoders offer 7406 open collector outputs yielding temperature stability and the ability to transmit signals long distances with high noise immunity.

The model E206, with its 26LS31 line driver output is available for applications where RS422 compatibility is needed.

Reliability is assured through the use of a single LED source and collimating lens. Hybrid electronic circuitry and common substrate arrays further enhance long-term operation and temperature stability.

Proven design and BEI experience make the models E202, E203 and E206 bargains for the robotic, process control, instrumentation and related markets.

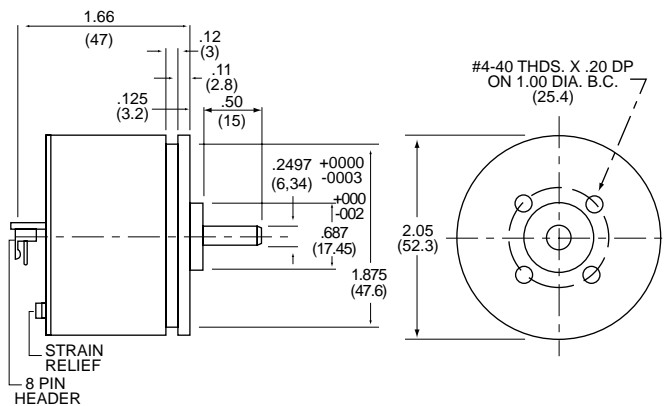


## Standard Features

- Line counts up to 2540 PPR
- Open collector differential 7406 buffer driver in the E202 and E203
- RS422 compatible 26LS31 differential line driver in the E206
- Index pulse
- 3 mounting configurations
- Focused IR/LED
- 100 kHz frequency response
- 2-year warranty

**Figure 1**

Servo Mount

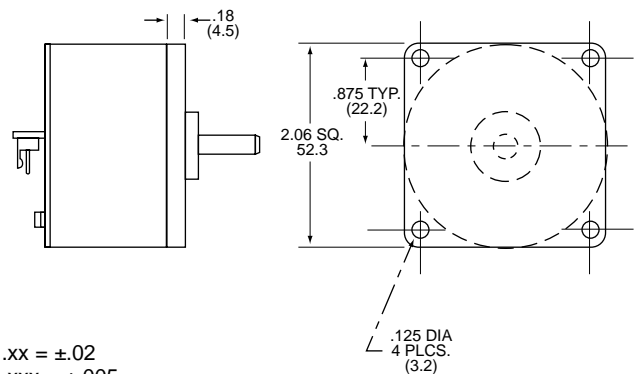


All dimensions in inches

**Figure 2**

Flange Mount

(Dimensions not shown, same as Figure 1)



.xx = ±.02  
.xxx = ±.005

# E20 Series Enclosed Incremental Rotary Optical Encoder

## Performance Specifications

### Mechanical

|                  |   |
|------------------|---|
| Dimensions       | see Figures 1 and 2                           |
| Weight           | 4 oz.   |
| Shaft Size       | 0.2497 +0.0000 -0.0003                        |
| Shaft Load       | axial 4 lbs., radial 8 lbs.                   |
| Torque, Starting | less than 0.4 oz. in.                         |
| Running          | less than 0.2 oz. in.                         |
| Inertia          | $1.8 \times 10^{-4}$ oz. in./sec <sup>2</sup> |

### Electrical

|                          |   |
|--------------------------|---|
| Code                     | incremental   |
| Pulses per Revolution    | see "Ordering Information"  |
| Supply Voltage           | +5V $\pm$ 5% @ 135mA max.   |
| Output Format            | dual channel quadrature with complements.<br>Index with complements available.  |
| Output Type (E202, E203) | TTL buffer/driver (7406)  |
| Output Voltage           | 1k ohm pull-up resistor<br>5.5V min. breakdown  |
| Sink Current             | 40mA  |
| Output Type (E206)       | TTL differential line driver (26LS31 or equiv.)<br>should be terminated into a line receiver<br>(26LS32, or equivalent circuit) |
| Frequency Response       | data & index 100 kHz  |

### Environmental

|                     |  |
|---------------------|--|
| Temperature         |  |
| Less than 1800 PPR  | Operating 0° to +70°C<br>Storage -25° to +90°C |
| 1800 PPR or greater | Operating 0° to +55°C<br>Storage -25° to +90°C |

### Termination Options

|                           |   |
|---------------------------|---|
| Header                    | 8 pin single row PC board header<br>(Molex 22-23-2081 or equivalent)                                      |
| Mating Connector included | Molex 22-01 3087 or equivalent with crimp terminals for 22-30 AWG wire                                    |
| Terminal board            | 1/16" circuit board, 2 rows of 8 holes,<br>0.40 dia. plated through on<br>0.10 centers for 22-30 AWG wire |

Figure 4

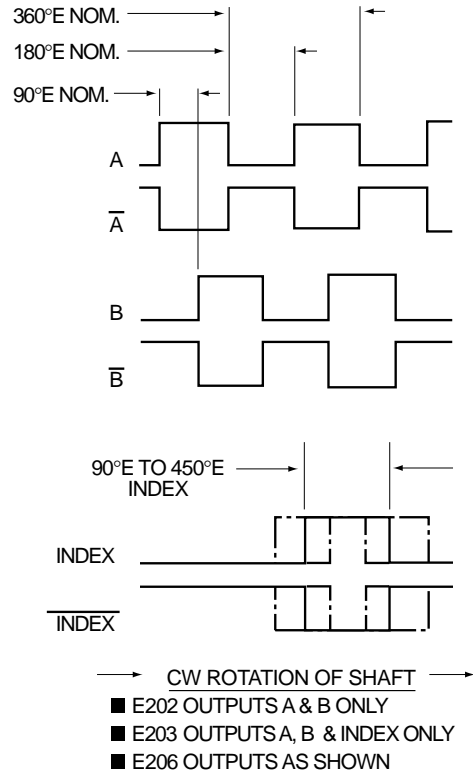
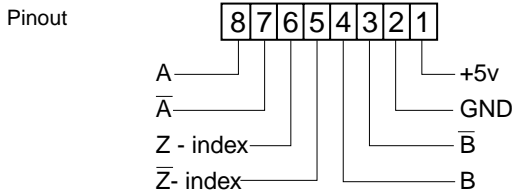


Figure 3



## Ordering Information

**E20 X - XXXX - X - X**

|  |       |
|--|-------|
| Basic Model No.  | _____ |
| Output Format  | _____ |
| 2 = Quadrature w/complements                                 |       |
| 3 = Quadrature w/index & complements<br>(7406 buffer drive)  |       |
| 6 = Quadrature w/index & complements<br>(26LS31 line driver) |       |
| Pulses Per Revolution (PPR)                                  | _____ |
| See Table 1  |       |
| Mounting and Termination                                     | _____ |
| 1 = Servo mount w/header                                     |       |
| 2 = Servo mount w/terminal board                             |       |
| 3 = Flange mount w/header                                    |       |
| 4 = Flange mount w/terminal board                            |       |
| Options  | _____ |
| 0 = Open Collector (E202 & E203 only)                        |       |
| 1 = 1k pull-up resistor (E202 & E203 only)                   |       |

**EXAMPLE: E202-1000-1-1**

Table 1

|     |     |      |      |
|-----|-----|------|------|
| 5   | 256 | 720  | 2000 |
| 10  | 300 | 1000 | 2048 |
| 20  | 360 | 1024 | 2400 |
| 80  | 500 | 1140 | 2500 |
| 100 | 510 | 1386 | 2514 |
| 120 | 512 | 1500 | 2540 |
| 200 | 625 | 1600 |      |
| 250 | 640 | 1800 |      |