

ED-20 Quadrature Output Series Magnetic Encoder



- High or low profile differential or NPN outputs
- Wide operational temperature range
- IP52 sealing
- Ball bearing
- Custom housings, shafts, connectors available, in many cases with no additional tooling required

DESCRIPTION

The ED-20 series magnetic encoder is designed for medium duty industrial feedback applications with ball bearing supported shaft. Resolutions are available from 200 to 400 counts per revolution. This encoder series also features line drivers with active termination for long cable runs and reverse voltage protection. The ED-20 also offers the option of high voltage differential, low voltage differential or open collector (NPN) outputs. An index channel which offers a pulse every 180° is also included. The magnetic technology used in the ED-20 series offers many advantages over conventional optical encoder technology such as sealed electronics and extended temperature ranges. Furthermore, since there are no LED degradation issues, the ED-20 offers a virtually unlimited life.

FEATURES

- Magnetic sensing technology
- Encapsulated electronics/sealed unit
- Harsh environment compatibility
- Quadrature outputs
- High or low profile differential or NPN outputs
- Consistent rotational torque
- Resistant to contamination
- IP52 sealing
- Metallic threaded bushing mounting
- Excellent stability – no optical degradation
- Custom housings, shafts, connectors available in many cases with no additional tooling required

APPLICATIONS

- Marine, avionics, motor speed and position control
- Marine steering
- Monitor pump speed and direction
- Camera position and control
- XY stage positioning
- Motor feedback
- Medical diagnostic equipment
- Video and sound editing equipment
- Valve position
- Syringe pump
- Marine steering and throttle position control/feedback

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PERFORMANCE SPECS (NOTE1)

Low and high voltage differential output:

| Parameters | ED-20-LVD-XXXX-Q-P | ED-20-HVD-XXXX-Q-P |
|-------------------------|---|--------------------|
| Supply current | 25 mA | 25 mA |
| Operating voltage (Vcc) | 5 Vdc \pm 0.25 Vdc | 12 Vdc to 32 Vdc |
| Voltage output high | Vcc – 0.4 V | |
| Voltage output low | 400mV | |
| Duty circle | 50% \pm 25% | |
| Standard resolutions | 400, 200 counts per revolution (4 counts = 1 pulse) | |
| Operating temperature | -40°C to +85°C | |

NPN open collector output:

| Parameters | ED-20-NPN-XXXX-Q-P |
|-------------------------|---|
| Supply current | 15mA |
| Operating voltage (Vcc) | 5 Vdc \pm 0.25 Vdc |
| Voltage output high | Vcc – 0.4 V |
| Voltage output low | 125 mV |
| Duty circle | 50% \pm 25% |
| Standard resolutions | 400, 200 counts per revolution (4 counts = 1 pulse) |
| Operating temperature | -40°C to +85°C |

Bearing:

| Parameters | ED-20-XXX-XXXX-Q-P |
|---------------|--------------------|
| Bearings | Ball |
| Maximum speed | 3000 RPM |
| Bearing life | 30,000,000 cycles |

(NOTE1): All specifications are specified with Vcc @ Nominal input voltage, and Ambient Temperature 25 Degrees Celsius.

MECHANICAL

| Parameters | ED-20-XXX-XXXX-Q-P |
|----------------------------|-------------------------------|
| Axial load (max) | 20 N |
| Radial load (max) | 10 N |
| Shaft end play axial (max) | 0.13 mm |
| Shaft radial play (max) | 0.25 mm (15.3 mm from thread) |
| Shaft push-in force | 9 N |
| Shaft pull-out force | 1.3 N |
| Run out (max) | 0.25 mm (19 mm from thread) |
| Bushing mounting torque | 1.1 Nm |

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DIMENSIONS

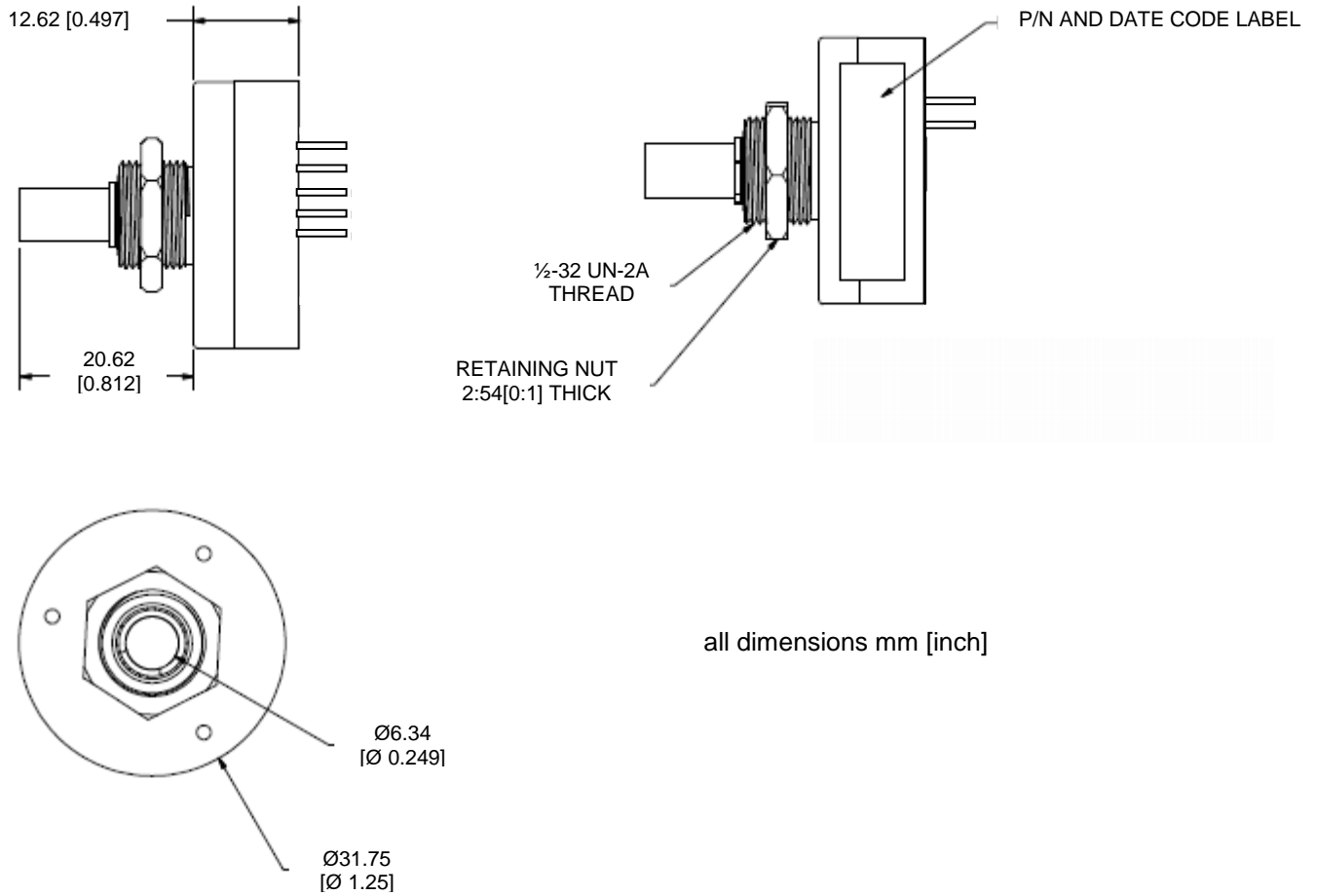


figure 1: Dimensions of the ED-20

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PINNING

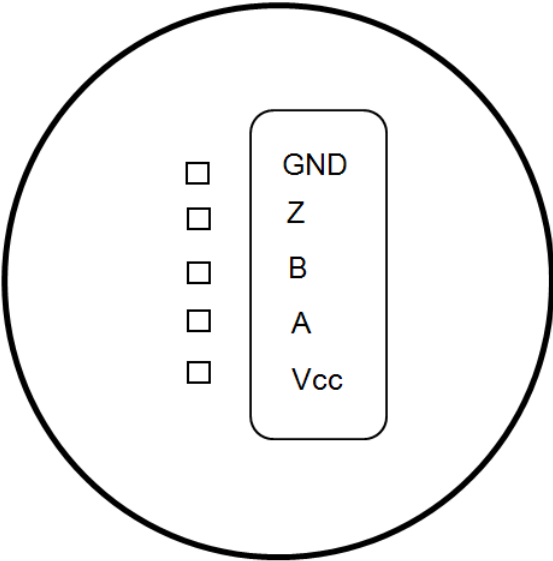


figure 2: Pinning of the ED-20 (NPN)

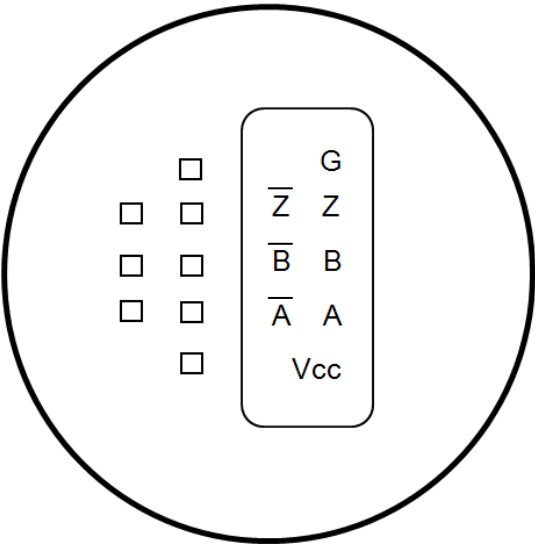


figure 3: Pinning of the ED-20 (HVD and LVD)

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TYPICAL PERFORMANCE CURVES

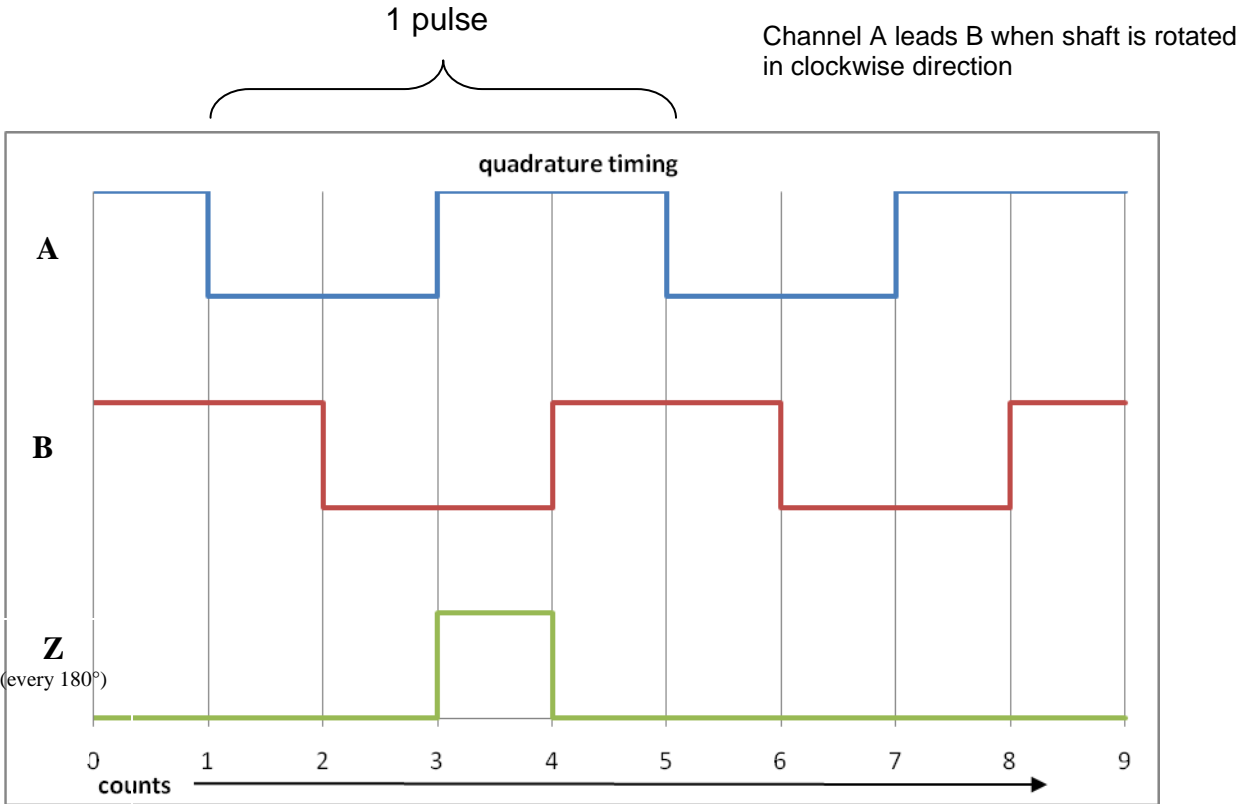


figure 4: quadrature outputs

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ENVIRONMENTAL

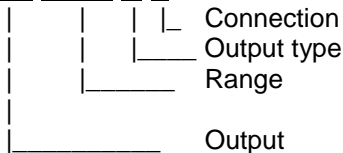
| | |
|-----------------------|--|
| Vibration | MIL-STD-202F Method 204D Test Condition B |
| Shock | MIL-STD-202F Method 213B Test Condition C |
| Humidity | MIL-STD-202F Method 103B Test Condition A |
| Thermal Shock | MIL-STD-202F Method 107G Test Condition A |
| Operating Temperature | -40 to +85°C |
| Storage Temperature | -55 to +125°C |

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ORDERING INFORMATION

PART NUMBERING Model Number - Output - Range – Output type - Connection

ED-20-XXX-XXXX-Q-P



Options:

- P = Pin header
- Q = Quadrature
- 0200 = 200 counts per revolution
- 0400 = 400 counts per revolution
- HVD = high voltage differential
- LVD = low voltage differential
- NPN = open collector

Example: ED-20-NPN-0400-Q-P

Model ED-20, quadrature output with open collector, 400 counts per revolution, pin header

| NORTH AMERICA | EUROPE | ASIA |
|---|--|---|
| Measurement Specialties, Inc. 1000 Lucas Way Hampton, VA 23666 United States Phone: +1-800-745-8008 Fax: +1-757-766-4297 Email: sales@meas-spec.com Web: www.meas-spec.com | MEAS Deutschland GmbH Hauert 13 D-44227 Dortmund Germany Phone: +49-(0)231-9740-0 Fax: +49-(0)231-9740-20 Email: info.de@meas-spec.com Web: www.meas-spec.com | Measurement Specialties China Ltd. No. 26, Langshan Road High-tech Park (North) Nanshan District, Shenzhen 518057 China Phone: +86-755-33305088 Fax: +86-755-33305099 Email: info.cn@meas-spec.com Web: www.meas-spec.com |

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