ED-21 Analog Output Series Magnetic Encoder

- **Analog voltage or current output**
- **Low profile**
- **IP52 sealing**
- **Ball bearing**
- **Custom housings, shafts, connectors available, in most cases with no additional tooling required**

DESCRIPTION

The ED-21 series magnetic encoder is designed to replace traditional mechanical potentiometers. This product is offered with a ball bearing supported shaft. Three standard output ranges are available: 0.5 Vdc - 4.5 Vdc, 4 mA - 20 mA. The magnetic technology used in the ED-21 offers advantages over conventional electromechanical potentiometers with sealed electronics, extended temperature ranges, and virtually unlimited life as there are no mechanical parts to wear out.

FEATURES

- Magnetic sensing technology
- Encapsulated electronics/sealed unit
- Harsh environment compatibility
- Analog voltage or current outputs
- Low profile
- Consistent rotational torque
- Resistant to contamination
- Excellent stability
- Metallic threaded bushing mounting
- Wide operational temperature range (-40°C to 85°C)
- IP 52 sealing
- Custom housings, shafts and connectors available in many cases with no additional tooling required

APPLICATIONS

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

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PERFORMANCE SPECS (NOTE1)

Analog voltage output:

Parameters	ED-21-BB-0545-V-P
Standard output range 0 - 360°	0.5 Vdc to 4.5 Vdc
Supply current	15 mA
Operating voltage (Vcc)	5 Vdc
Resolution	1.4°
Accuracy	2.8°
Operating temperature	-40°C to +85°C

Analog current output:

Parameters	ED-21-BB-0420-I-P
Standard output range 0 - 360°	4.0 mA to 20.0 mA
Supply Current	15 mA + output current loop
Operating voltage (Vcc)	8 Vdc to 26 Vdc
Resolution	1.4°
Accuracy	2.8°
Operating temperature	-40°C to +85°C

Bearing:

Parameters	ED-21-BB-XXXX-X-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-21-BB-XXXX-X-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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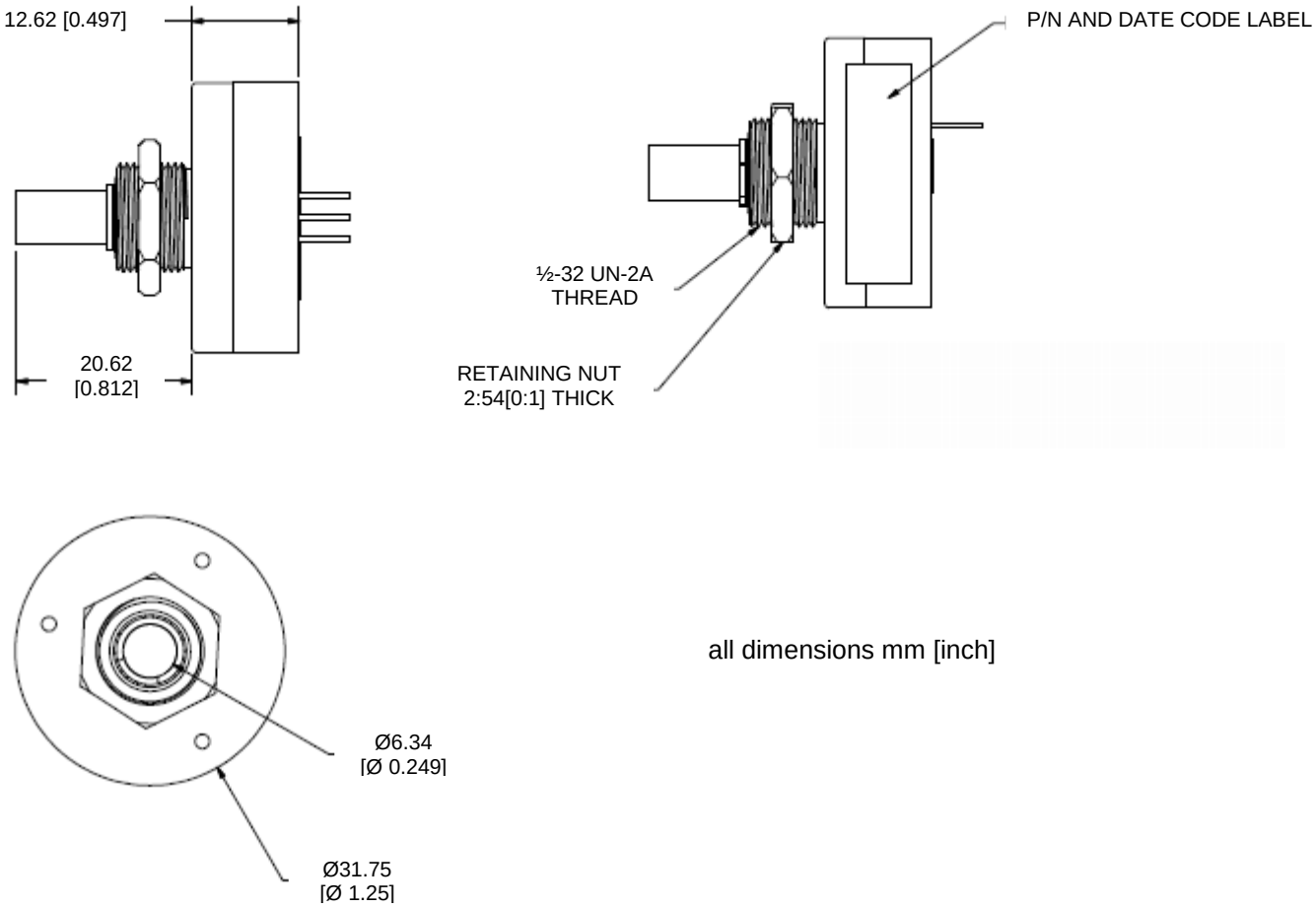
DIMENSIONS



all dimensions mm [inch]

figure 1: Dimensions of the ED-21

ED-21 Analog Output Series Magnetic Encoder

PINNING

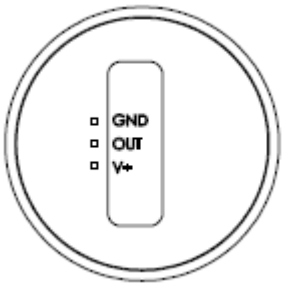


figure 2: Pinning of the ED-21 (bottom view)

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TYPICAL PERFORMANCE CURVES

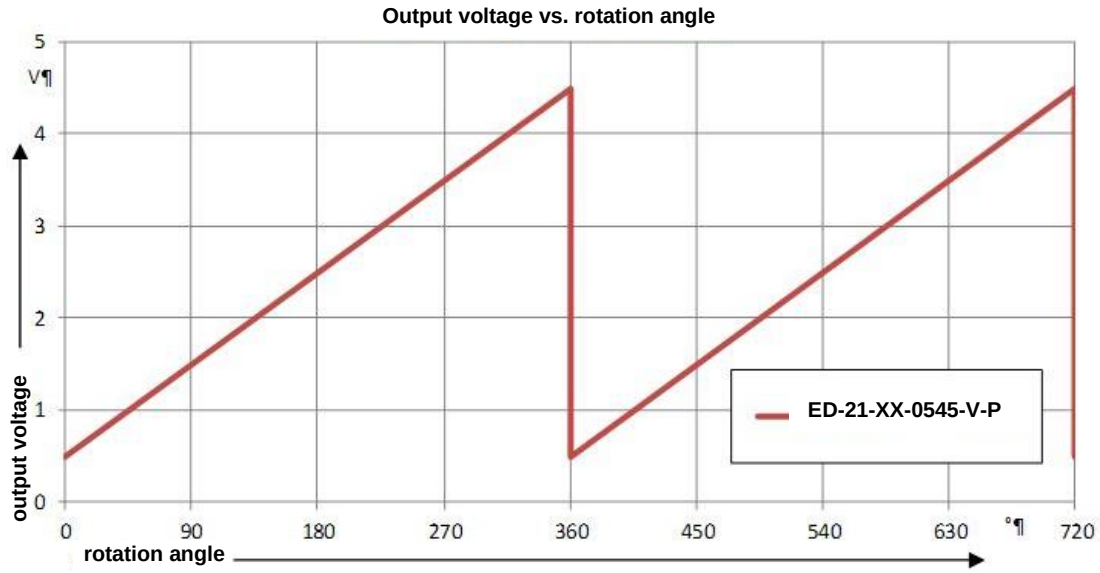

figure 3: Output voltage vs. rotation angle

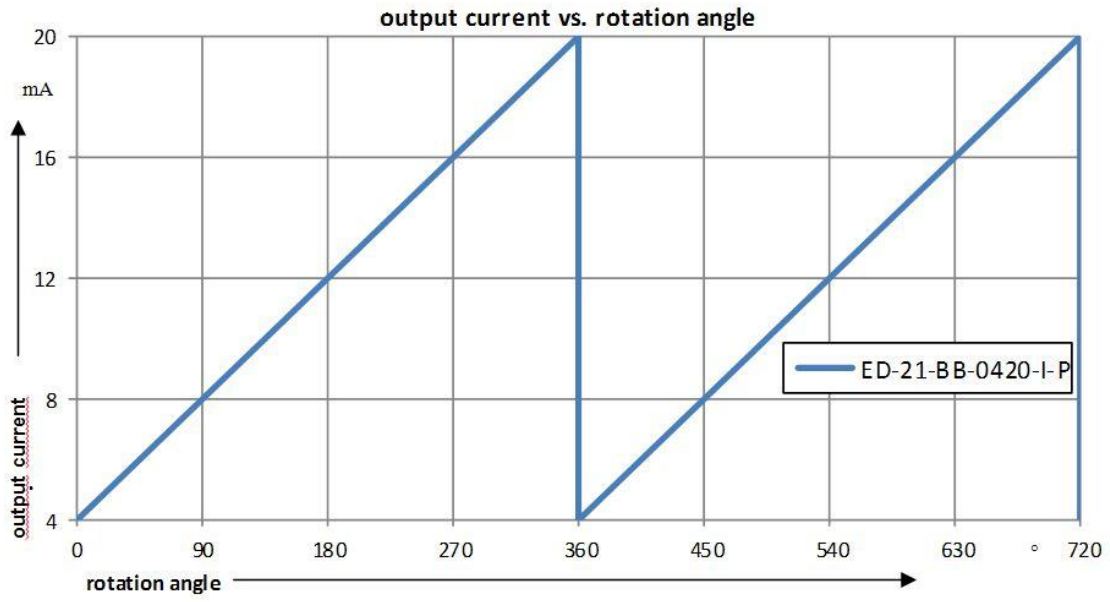

figure 2: Output current vs. rotational angle

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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 - Bearing - Output Range - Analog Output - Connection - Assembly Variant

ED-21-BB-XXXX-X-P

Connection	Options:	
Analog Output	P = Pin header	
Output Range	V = Voltage	
Bearing	I = Current	
	0545 = 0.5 Vdc to 4.5 Vdc	
	0420 = 4 mA to 20 mA	
	BB = Ball bearing	

Example: ED-21-BB-0545-V-P

Model ED-21, ball bearing, analog output voltage from 0.5 Vdc to 4.5 Vdc, pin header

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