ED-21

Analog Output Series Magnetic Encoder

SPECIFICATIONS

- **Analog voltage or current output**
- **Low profile**
- **IP52 sealing**
- **Ball bearing**

The ED-21 series magnetic encoder is designed to replace traditional mechanical potentiometers.

This product is offered with a ball bearing supported shaft.

Two standard output options are available: 0.5 VDC to 4.5 VDC or 4 mA to 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
- Harsh environment compatibility
- Analog voltage or current outputs
- Low profile
- Consistent torque
- Resistant to contamination
- Excellent stability
- Metallic threaded bushing mounting
- Wide operational temperature range (-40 °C to 85 °C)
- IP52 sealing

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
- Syringe pump
- Marine, avionics, motor speed and position control
- Marine steering

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): Vcc = 5 V | 12 V, Ambient Temperature 25 °C

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

DIMENSIONS

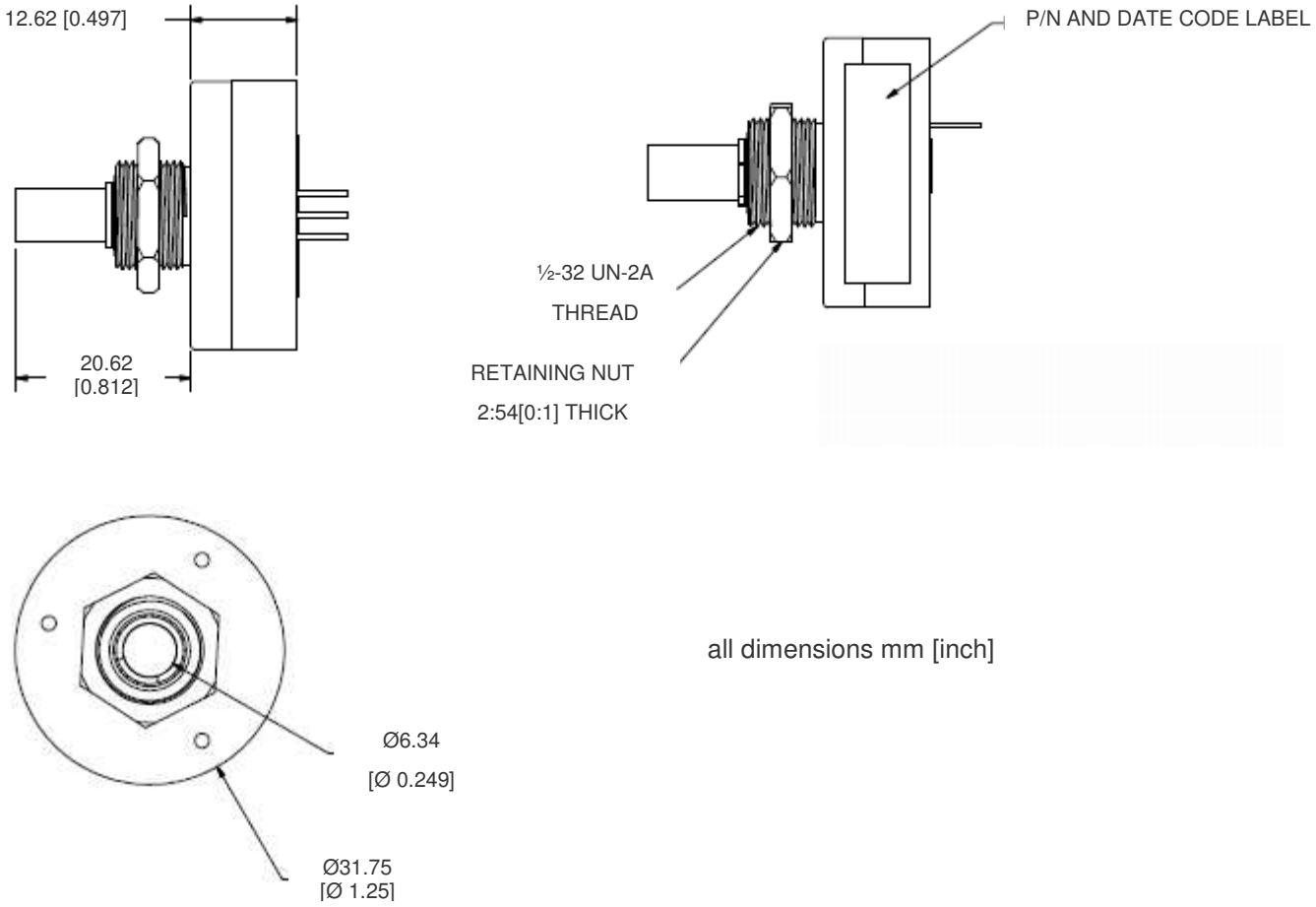

Figure 1: Dimensions of the ED-21

PINNING

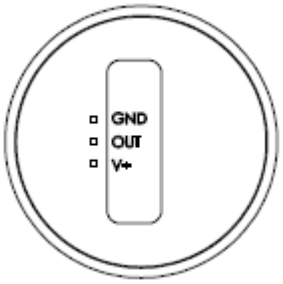

Figure 2: Pinning of the ED-21 (bottom view)

TYPICAL PERFORMANCE CURVES

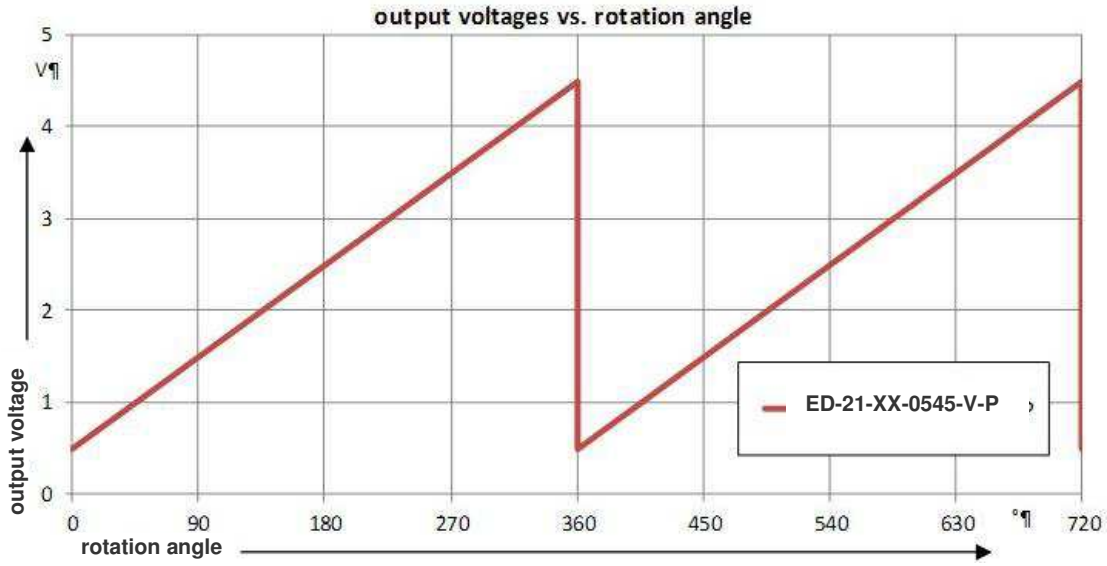

Figure 3: Output voltage vs. rotation angle

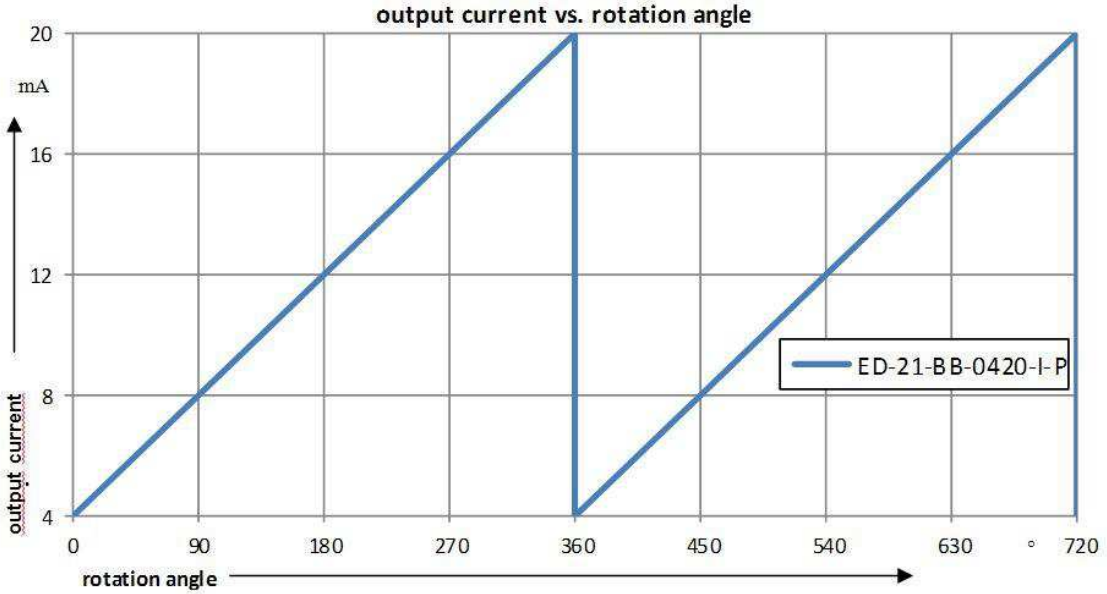

Figure 2: Output current vs. rotational angle

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

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 I = Current	
Bearing	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