

FEATURES

- **Fast, Easy Assembly and Disassembly**
- **Fits Shaft Diameters from 0.118" to 0.250"**
- **Mounts onto 0.750", 1.280", and 1.812" Bolt Circles**
- **±0.025" Axial Shaft Play**
- **10-Bit Analog Output - 2.6 kHz Sampling Rate**
- **10-Bit PWM Output - 1024 CPR, 1 kHz**
- **12-Bit PWM Output - 4096 CPR, 250 Hz**
- **Operating Temperature of -40° to +125°C**

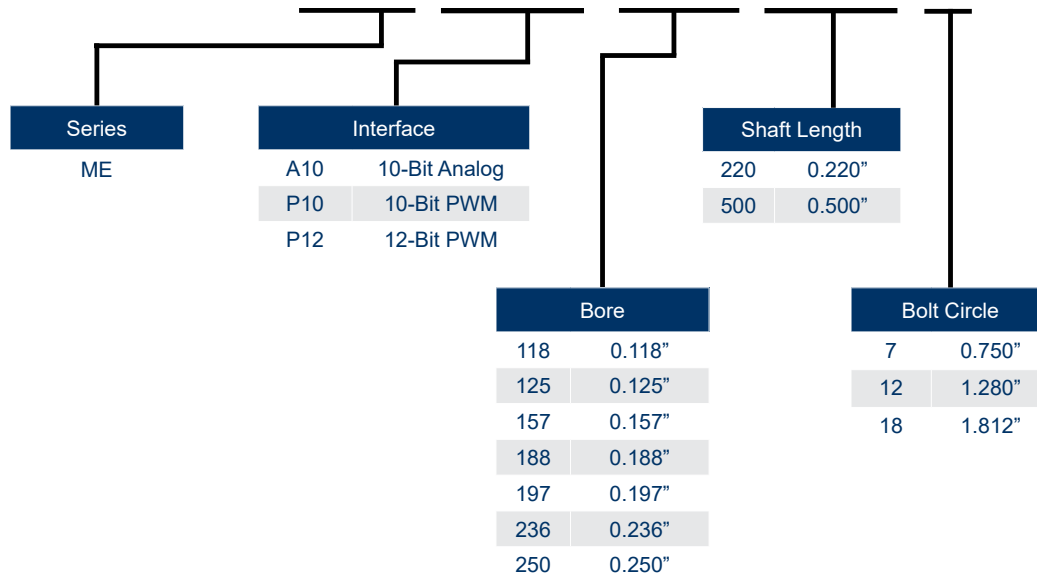


DESCRIPTION

The ENC-ME Absolute Magnetic Kit Encoder equips the shaft with position information of over 360° of rotation with no stops or gaps. The ENC-ME is made to easily mount and dismount from an already existing shaft to provide digital feedback information. Analog or Pulse Width Modulated (PWM) digital outputs are available. With the Analog Output it provides an Analog voltage that is proportional to the absolute shaft position. ENC-ME with Analog is only available in the 10-Bit resolution. The PWM output is available in both 10-Bit and 12-Bit resolutions. When using the PWM output it will provide a pulse width duty cycle that is equivalent to the absolute shaft position. Both the 10-Bit and 12-Bit versions of encoders have the same accuracy; however, the 12-Bit version provides higher resolutions. There are three main components that make the ENC-ME: base, push-on magnetic hub, and encoder body. The base fits 0.750", 1.280", and 1.812" mounting bolt circles. The collet gripping hub does not require any tools and simply is pushed onto the existing shaft. It takes only a few seconds to attach the hub to the shaft. With the hub attached to the shaft it provides an easy and dependable way of securing the magnet to the shaft. Furthermore, the encoder body is placed over the magnetic hub and can be secured to any flat surface. With a simple connection process involving only 3-pins, the high retention snap in 1.25mm connector, that is pitch polarized, provides +5V for output and ground.

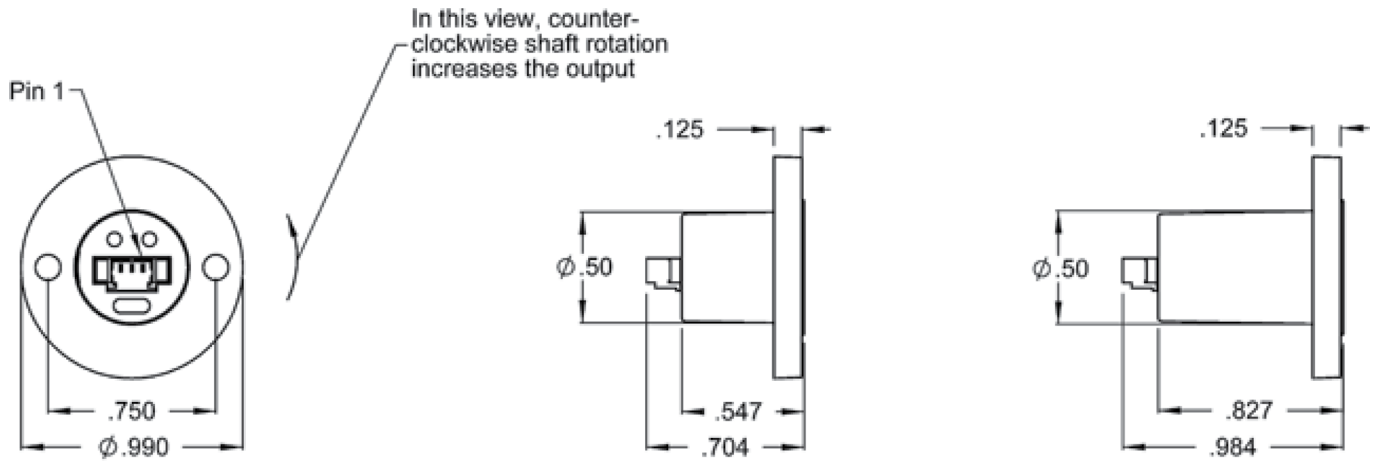
ORDERING INFORMATION

## ENC-ME-A10-118-220-7

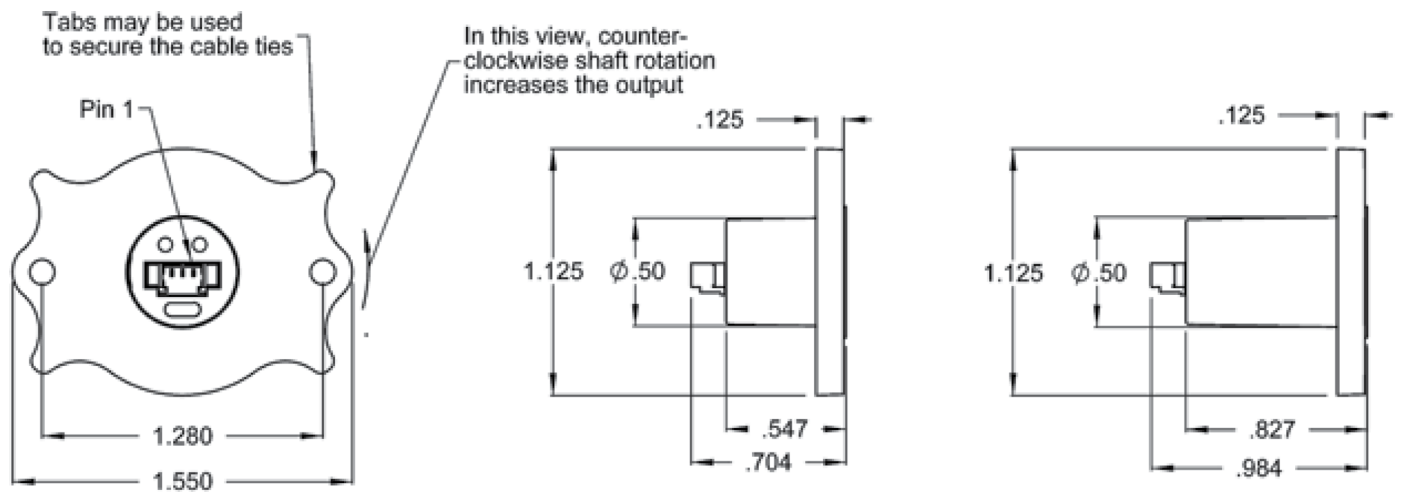


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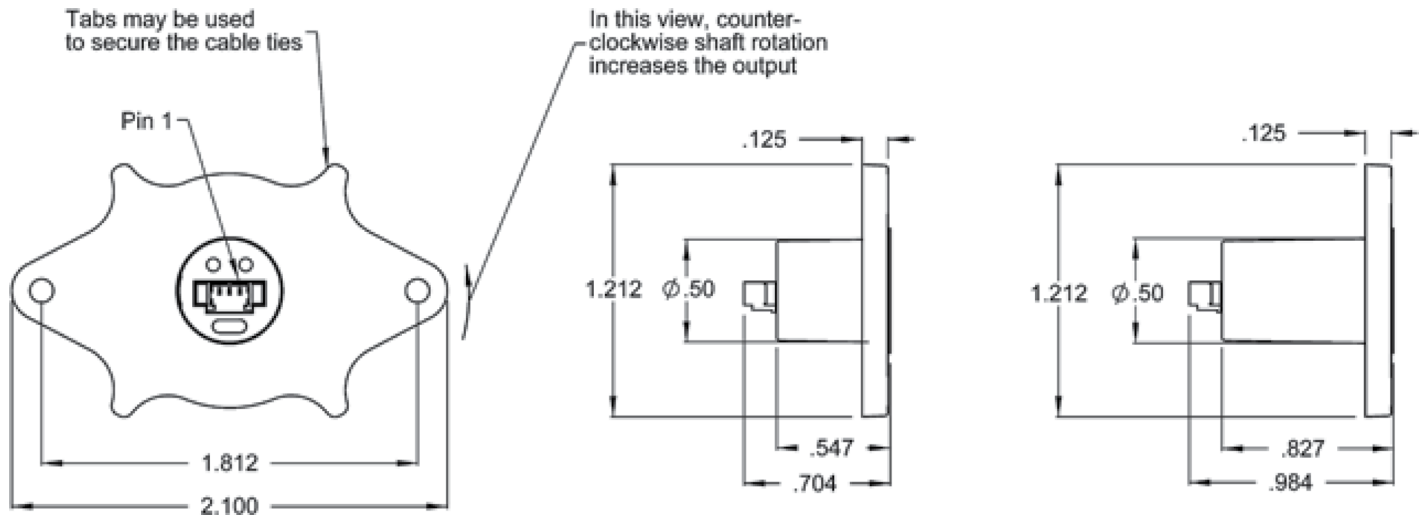
### Size 7 Bolt Circle



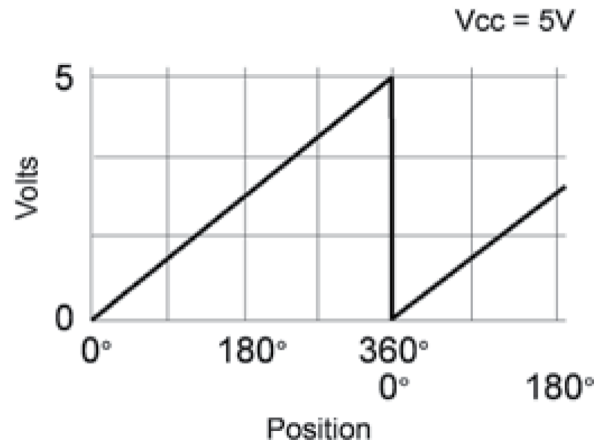
### Size 12 Bolt Circle



### Size 18 Bolt Circle



DIMENSIONS



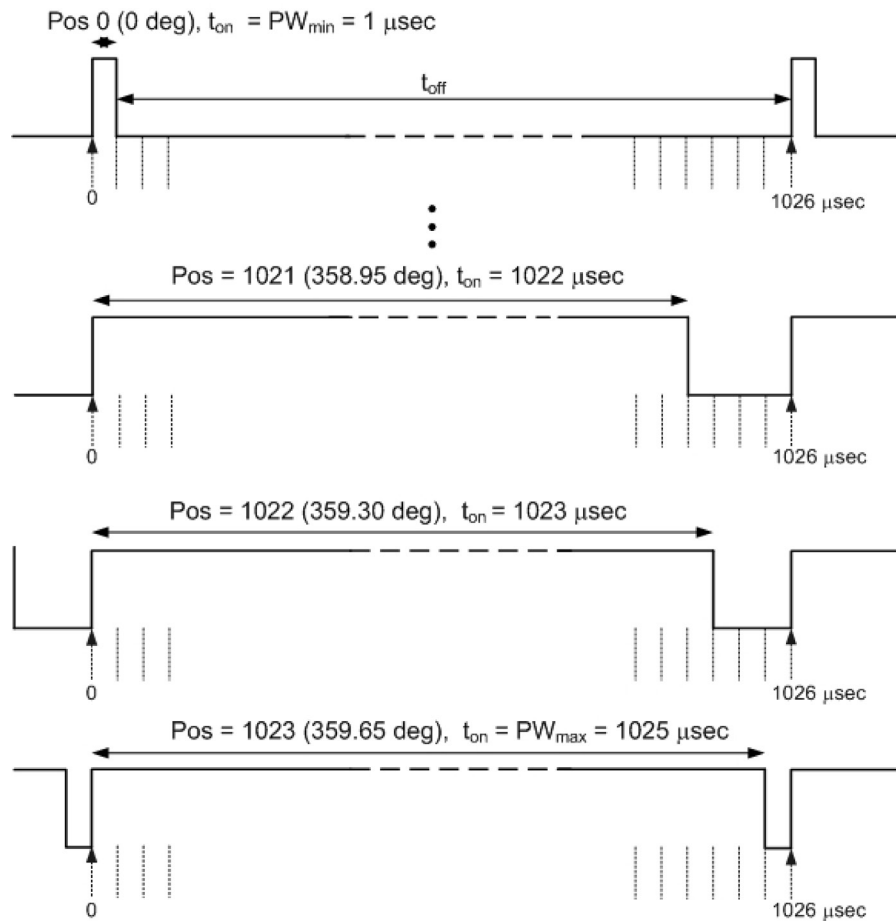
Electrical Parameter	Minimum	Typical	Maximum	Units
Position Sampling Rate	2.35	2.61	2.87	kHz
Propagation Delay	-	-	384	μS
Analog Output Voltage Maximum	-	4.987	-	Volts
Analog Output Voltage Minimum	-	0.015	-	Volts
Output Short Circuit Sink Current	-	32	50	mA
Output Short Circuit Source Current	-	36	66	mA
Output Noise	160	220	490	μVrms
Output Transition Noise	-	0.03	-	Deg. RMS

PWM Output Operation Parameter	Minimum	Typical	Maximum	Units
PWM Frequency (-40°C to 125°C)				
10-Bit	0.877	0.975	1.072	kHz
12-Bit	220	244	268	Hz
Minimum Pulse Width				
10-Bit	0.95	1.00	1.05	uS
12-Bit	0.95	1.00	1.05	uS
Maximum Pulse Width				
10-Bit	974	1025	1076	uS
12-Bit	3892	4097	4302	uS
Internal Sampling Rate				
10-Bit	9.38	10.42	11.46	kHz
12-Bit	2.35	2.61	2.87	kHz
Propagation Delay				
10-Bit	-	-	48	uS
12-Bit	-	-	384	uS
Output Transition Noise, 12-Bit Version		0.03		Deg. RMS
Output Transition Noise, 10-Bit Version		0.12		Deg. RMS
Output High Voltage (VOH: @4mA Source)	Vcc -0.5	-	-	V
Output Low Voltage (VOL: @4mA Sink)	-	-	0.4	V

**10-Bit PWM:**  $x = ((t_{on} * 1026) / (t_{on} + t_{off})) - 1$

If  $x \leq 1022$ , then Position =  $x$

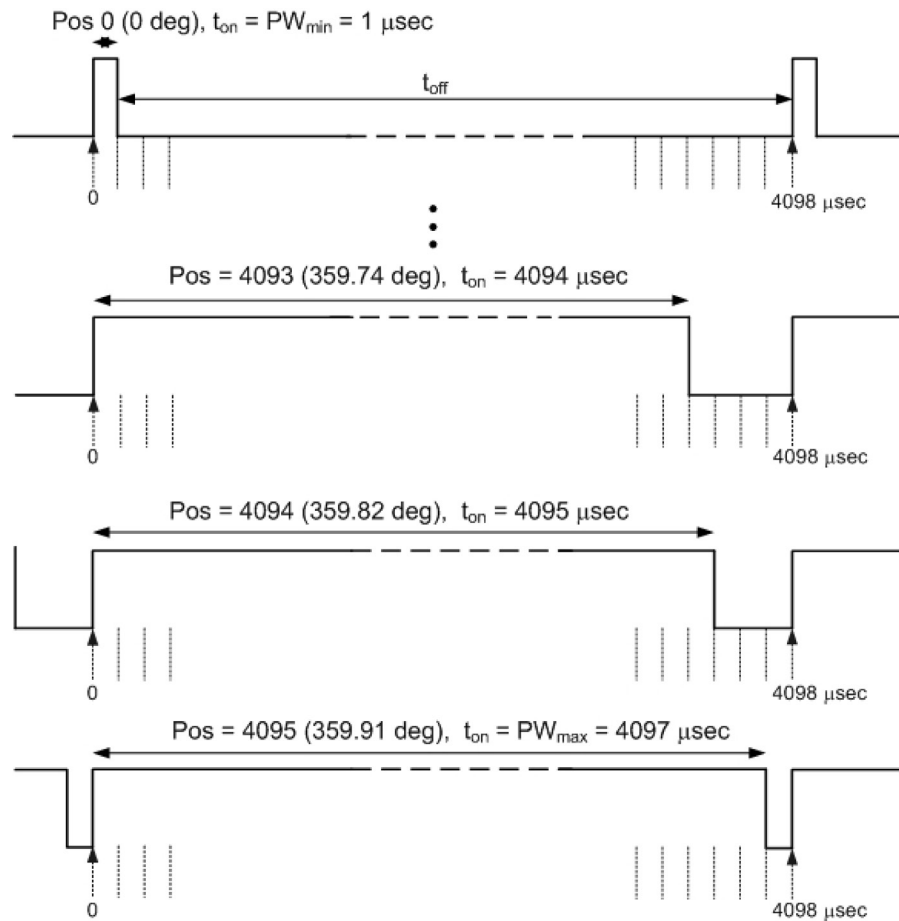
If  $x = 1024$  then Position = 1023



**12-Bit PWM:**  $x = ((t_{on} * 4098) / (t_{on} + t_{off})) - 1$

If  $x \leq 4094$ , then Position =  $x$

If  $x = 4096$  then Position = 4095



Environmental Parameter	
Operating Temperature	-40°C to +125°C
Storage Temperature	-55°C to +125°C
Humidity, Non-Condensing	5% to 85%
Vibration (5Hz to 2kHz)	20G.
Electrostatic Discharge	± 2 kV
Mechanical Parameter	
Max. Shaft Axial Play	±0.025 in.
Max. Shaft Eccentricity Plus Radial Play	0.004 in.
Max. Acceleration	250,000 rad/sec <sup>2</sup>
Moment of Inertia	8.49 x 10 <sup>-7</sup> oz-in-s <sup>2</sup>
Mounting Screw Size (pan head)	4-40 x1/4"
2 Screw Bolt Circle Diameter (Size 7)	0.750 ± 0.005 in.
2 Screw Bolt Circle Diameter (Size 12)	1.280 ± 0.005 in.
2 Screw Bolt Circle Diameter (Size 18)	1.812 ± 0.005 in.
Required Shaft Length, including axial play: Size 220 Shaft Length - option Size 500 Shaft Length - option	0.220 (+0.015 / -0.020) in. 0.500 (+0.015 / -0.020) in.

**Max. RPM:**

10-Bit Analog	156,600 / RPM
10-Bit PWM	625,200 / RPM
12-Bit PWM	156,600 / RPM

Electrical Parameter	Minimum	Typical	Maximum	Units
Power Supply	4.5	5.0	5.5	Volts
Supply Current	-	16	20	mA
Power-up Time	-	-	50	mS

**Analog Output (ENC-ME-A10)**

Pin	Name	Description
1	5	+5VDC Power
2	A	Analog Output
3	G	Ground

**PWM Output (ENC-ME-P10 / ENC-ME-P12)**

Pin	Name	Description
1	5	+5VDC Power
2	A	PWM Output
3	G	Ground