Unicoder™ ME-110 *Low Cost Incremental and Absolute High Resolution Encoder*
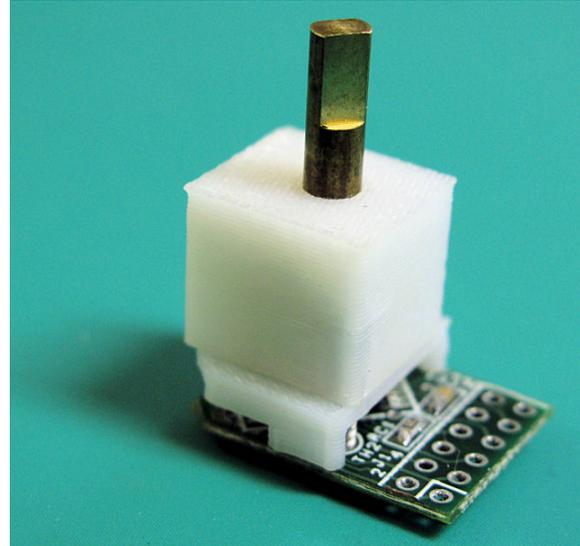
Applications:
- contactless rotary position sensing
- odometry
- closed-loop motor control
- potentiometer replacement
- robotics
- brushless DC motor commutation

Features:
- 1024 positions per rotation
- 3.3 volt operation
- readable, nonvolatile angular position*
- programmable index pulse location*
- programmable zero angle location*
- programmable resolution: 7, 8, 9, and 10 bit*
- programmable direction of rotation (CW or CCW)*
- programmable output modes*: quadrature, sign-magnitude, or BLDC motor commutation
- quadrature, PWM, and index pulse output
- an external low pass filter can convert the PWM output to an analog signal proportional to angle

Benefits:
- fits inside many hobby servos in place of existing rectangular potentiometer

The entry-level ME-110 uses the same Austria Microsystems AS-5040 magnetic encoder chip as the Nubotics ME-210, but omits the microcontroller used to provide an intelligent interface, reducing overall system cost.

The Nubotics ME-110 is perfect for incremental encoder applications, as well as absolute encoder applications where your controller can take care of the AS5040 synchronous serial interface. And, as the shaft and case are designed to replace rectangular potentiometers used for angle sensing in many standard size RC servos, robot builders now have a powerful new way to measure joint position, wheel velocity, total distance travelled, and more.

*Reading angular position, and programming of operating mode, depends on correct control of the CS, Prog, Clk, and DO lines as documented in the Austria Microsystems AS5040 datasheet.

Unicoder™ – ME-110

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Connector Pinout

Pin	Quadrature	Sign/Magnitude	Commutation	Description
1		MagDec		open drain reduced magnetic field indicator
2		MagInc		open drain increased magnetic field indicator
3	PWM	PWM	LSB	1KHz PWM signal, where duty cycle indicates angle
4	Index	Index	W	once-around index pulse or BLDC motor W phase
5		/CS		chip select; pull low to enable ChA/ChB after power on
6		Vdd		+3.3v max
7		DO		data out of synchronous serial interface
8		Clk		clock for synchronous serial interface
9	ChB	DIR	V	quadrature B, rotation direction, or BLDC V
10	ChA	CLK	U	quadrature A, rotation clock, or BLDC U
11		Prog		data in for synchronous serial interface
12		Gnd		ground

Specifications

Value	Min	Max	Units
Supply Voltage, Vcc	3.0	3.6	Volts
Resolution	64	1024	Ticks/360"

Compatible Servos

Manufacturer	Models
GWS	S03N2BB, S03T, S03TXF, S06
Hitec	HS322

Others may be compatible as well.

NU-BOTICS