

Unicoder™ - ME-210

Intelligent Incremental and
Absolute High Resolution Encoder

Applications

- contactless rotary position sensing
- odometry
- closed-loop motor control
- potentiometer replacement
- robotics
- brushless DC motor commutation

Features

All Unicoder ME-210s include:

Incremental Encoder:

programmable output modes:
quadrature, sign-magnitude, or BLDC
motor commutation outputs
programmable index pulse location
programmable index pulse width
programmable resolution: 64, 128,
256, or 512 pulses per rotation
programmable direction of rotation
(CW or CCW)
10,000 RPM max

Absolute Encoder:

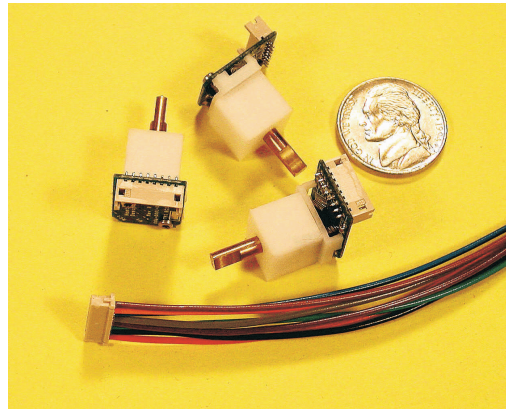
programmable zero angle location
nonvolatile angle sensing, 1024
positions per rotation

Motion Statistics:

instantaneous velocity measured in
encoder ticks per second
readable position, angle, velocity, and
tick-to-tick period
writeable position
readable realtime clock for external
velocity calibration
programmable position resolution: 7-10
bits

Intelligent Interface:

I2C command interface, 400KHz max
simple register-like commands
programmable slave address
SMBus compatible
3.3 volt operation; I2C lines 5 volt
tolerant
field-upgradable firmware via RS232



Nubotics breaks new ground with this unique new sensor. Combining the best of both incremental quadrature encoders with a 10 bit absolute encoder, while providing motion statistics, coupled with programmable operation, all using an intelligent bus (I2C), the Nubotics Unicoder ME-210 solves many problems for electromechanical designers in a very compact package.

And, since the shaft and case are designed to replace rectangular-case 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.

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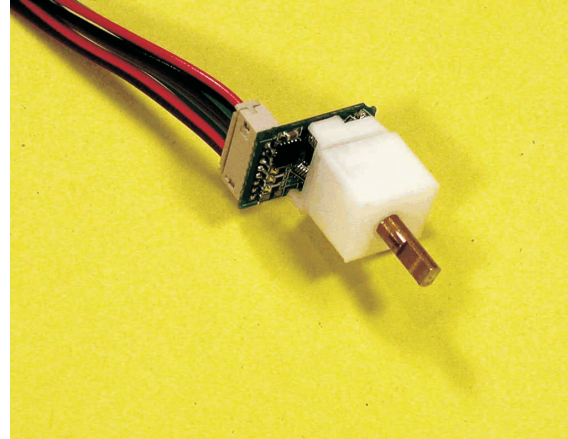
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Connector Pinout

Pin	Quadrature	Sign/Magnitude	Commutation
1	Index	Index	W
2	ChA	CLK	U
3	ChB	DIR	V
4	/Reset		
5	SCL / RX*		
6	SDA / TX*		
7	Gnd		
8	Vcc		



*RX/TX are used for field-upgradable firmware feature, via 38400 baud serial. Unit must be upgraded off of I2C bus.

Specifications

Value	Min	Max	Units
Supply Voltage, Vcc	3.0	3.6	Volts
Supply Current	18.1	25.8	mA
Resolution	64	1024	Ticks/360°
Shaft Diameter	.125		inches
Shaft Length	.375		
Case Width	.394		
Case Length	.438		
PCB Width	.500		
PCB Length	.700		
Overall Width	.560		
Overall Length	.713		
Overall Height	.955		

Command Set

Commands: Sync, Echo, Name, Reset, Get/Set/Store Options, Status, Query Distance/Angle/Velocity/Period/Time, Set Distance/Time. Parameter Lengths:: Distance, Period, Time: 32 bits; Velocity, Angle: 16 bits; Others: 8 bits.

Compatible Servos

Manufacturer Models
GWS S03N2BB, S03T, S03TXF, S06
Hitec HS322
Others may also be compatible.

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