

The Electroswitch 500 Series Magnetic Encoders are built upon a contact free integrated circuit design. This encoder integrates Hall Effect sensing and digital signal processing to provide high-resolution angular measurement solutions.

An important advantage of the 500 Series is the dramatic reduction in package size to 1/2 inch, while still incorporating the performance and output options required to support the widest range of industrial and motion sensing applications.

The 500 Series design leverages its reduced part count and simplified construction to provide extremely robust, high shock and vibration resistant performance, excelling in harsh and dirty environments.

## FEATURES

- Compact, Robust, 1/2" package
- High Resolution Encoding up to 1024 PPR
- Widest Temperature Range
- Absolute and Incremental Outputs
- Zero Reference Positioning
- Tachometer with Direction Sensing
- Quadrature Code Output
- RoHS Compliant
- Contact Free Magnetic Design
- 3.3 or 5.0 VDC Options

## BENEFITS

- Compact Size
- Multiple Output Codes Allowing Simpler Integration With a Wider Variety of Receiving Devices
- Best Encoder Reliability
  - Longest Life
  - Excellent Performance in Harsh Environments
- Low Power Consumption

## APPLICATIONS

### MOTOR CONTROL DEVICES

Control of motor circuits is accomplished by linking encoder to motor shaft

- Material Handling Equipment
- Machine Tools
- Conveyor Belts
- Printing Equipment
- Elevators
- Factory Automation

### FLOW CONTROL DEVICES

Fluid flow can be metered by the encoder attached to displacement turbine and other styles of meters and pumps

- Manufacturing Process Controls
- Valve and Flow controls
- Fuel Pumps

### AUDIO/ENTERTAINMENT

Frequency Select for Professional and High End Audio Applications

- Mixing Consoles
- High End Amplifiers
- Lighting Controls (intensity select)

### AVIONICS

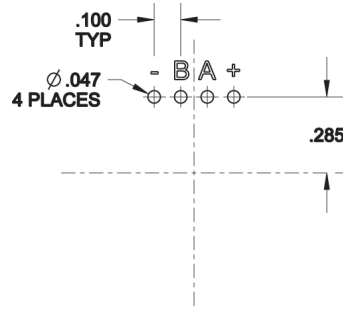
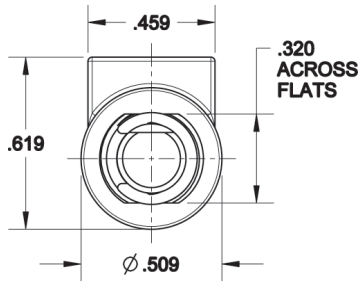
- Altitude Positioning
- Missile Firing and Guidance
- In-flight Refueling
- Auto Pilot Controls

### MEDICAL

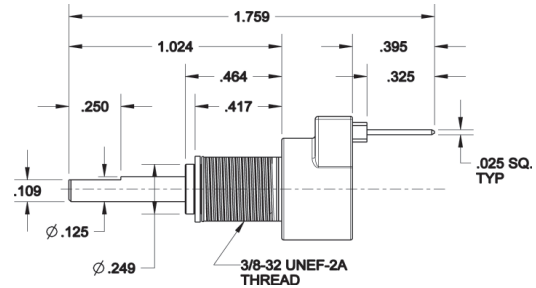
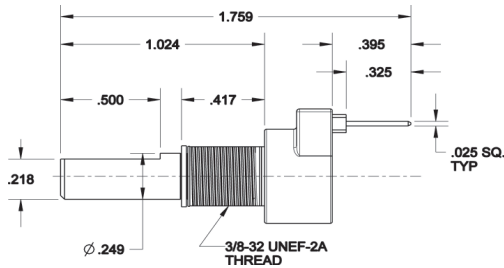
- Infusion Pump Flow
- Dispensing Equipment
- Automated Vial Sampling Equipment
- Dialysis Machines
- Ventilators

### INDUSTRIAL POSITION SENSING AND POSITION CONTROL

- Off Road / Construction Equipment
- Lift Trucks
- Welding Machines



**MOUNT FOOTPRINT**  
Quadrature Pinout Shown.  
(Consult factory for Additional Pinouts)



## Specifications

### Electrical Specifications

Operating Voltage 4.7 to 5.7 VDC or 3.3 to 3.8 VDC  
Supply Current [30 mA Max]  
Logic output VCC High; 0.4 Low  
Power Consumption 165mW max.

#### Codes:

Quadrature 32, 64, 128 or 256 PPR  
Tachometer 64, 128, 256, 512 PPR (w/ direction)  
Absolute 10 bit PWM (1024 PPR) \*  
Quadrature 32, 64, 128 or 256 PPR w/ Z channel\*

Frequency [fixed] 1  $\mu$ s

### Environmental Specifications

Operation Temperature -40C to +105C  
Storage Temperature -55 C to +125C  
Humidity MIL STD 202G Method 103B Condition A or Higher

### Mechanical Specifications

#### Mechanical Vibration

Harmonic motion with amplitude of 15g, varied from 10 to 2000 Hz for 12 hours, per MIL STD 202G Method 204D Condition B or Higher

#### Mechanical Shock

100g for 6 ms half sine wave with velocity change of 12.3 ft/s, per MIL STD 202G Method 213B Condition C or Higher

Life cycles: 10M w/ sleeve bearing  
Operational speed: 200 rpm max w/ sleeve bearing  
Weight: 0.5 oz.

#### Materials:

Housing: Zinc Die Cast Alloy  
Shaft: Stainless Steel  
Terminal: Tin Plated

**NOTE:** Mounting Hardware Included

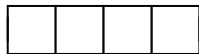
**Standard Sealing:** Limited Dust and Water Ingress Protection

## Ordering Information

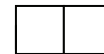
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**Voltage:**  
5= 5 VDC

**Output:**  
Q= Quadrature  
T= Tachometer w/ direction

**Resolution / PPR:**  
Quadrature: 0032, 0064,  
0128, 0256  
Tachometer 0064, 0128,  
0256, 0512 (Tachometer)

**Sealing:**  
S=Standard

**Shaft Diam:**  
01 = .250  
02 = .125

**Termination:**  
0= Straight Pins

### \*Additional Options

**Voltage:**  
3= 3.3VDC  
**Output:**  
A= Absolute (10 bit PWM)  
Z= Quadrature w/ Z channel

**Resolution / PPR:**  
Absolute: 1024  
Quadrature w/ Z: 0032,  
0064, 0128, 0256

**Sealing:**  
P= Panel Seal  
I=IP67

**Termination:**  
4= 4" Cable & Connector

### Example Part #

505Q-0256-S010 = 500 Series Encoder, 5 volt, Quadrature, 256, no additional sealing, 1/4" diam. shaft, w/ straight pins

\***Additional Options:** Contact Electroswitch for Lead-times and Minimum Order Requirements

**Customization can include:** Modified Shaft Lengths and Flats - Cabling Options