

ENC-A16S Single-Ended Micro Optical Encoder



FEATURES

- Miniature Size
- Push-on Hub with Spring Loaded Collet Design
- 250/256 to 4,000/4,096 Cycles per Revolution (CPR)
- Off-Axis Mounting Tolerance of 0.010"
- A, B and Index Digital Quadrature Outputs
- Operating Temperature of -40° to +100° C
- Powered from a Single +5VDC Power Supply

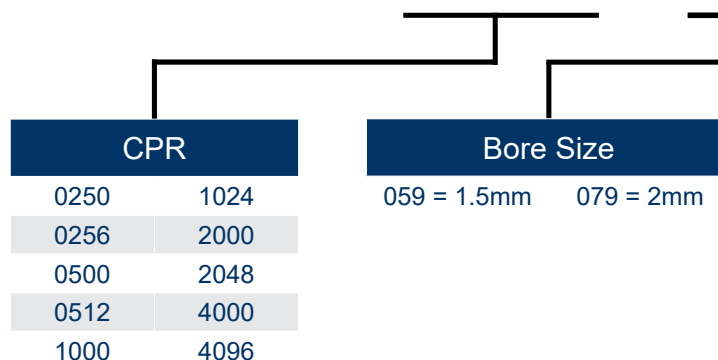


DESCRIPTION

With an acceptable minimum shaft length of .236" and maximum shaft length of .305". Shaft-sizes ranging from .059" to .079" in diameter, the ENC-A16S is a single-ended micro optical encoder designed to provide A, B and Index digital quadrature signals for high volume applications with limited space. The ENC-A16S module is designed to detect the rotary position with a code wheel. When attached to the end of a shaft, the encoder provides digital feedback information for motion control applications that require position, speed and/or direction control. Due to the A16's design, it is recommended for use as a onetime installation. These modules implement phased array detector technology providing superior performance and tolerances over traditional aperture mask type encoders. The ENC-A16S series provides digital quadrature outputs on all resolutions and are capable of sinking or sourcing 18 mA each. These encoders are powered from a single +5VDC power supply and are RoHS compliant.

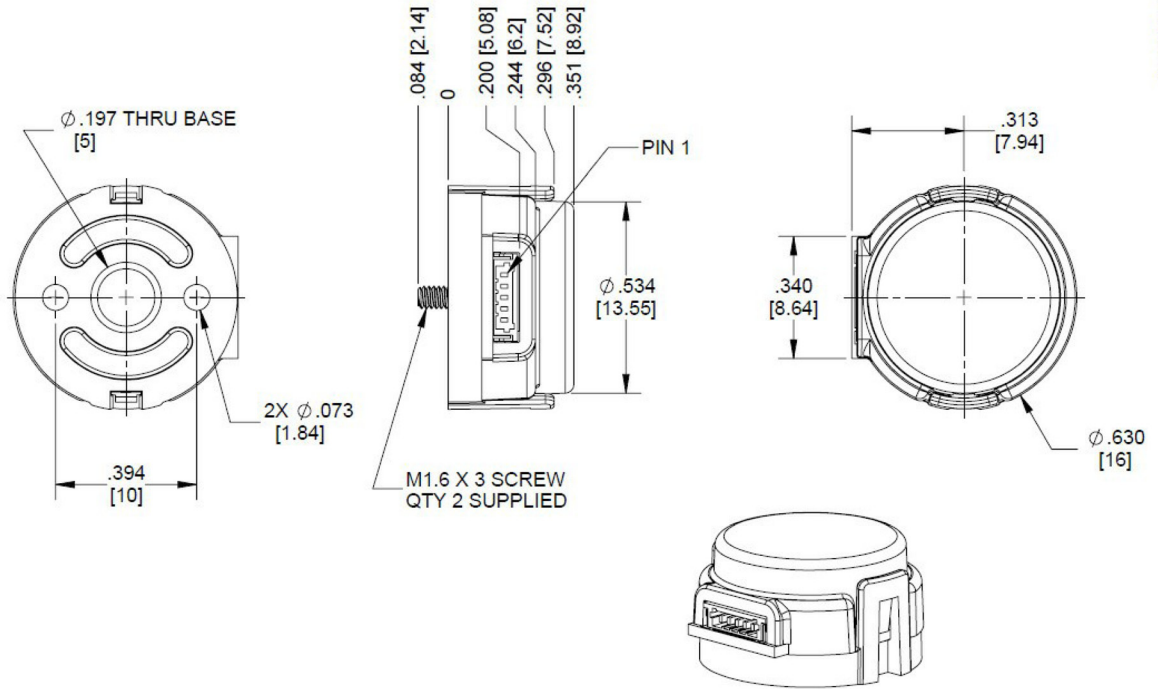
ORDERING INFORMATION

ENC - A16S - 0250 - 059

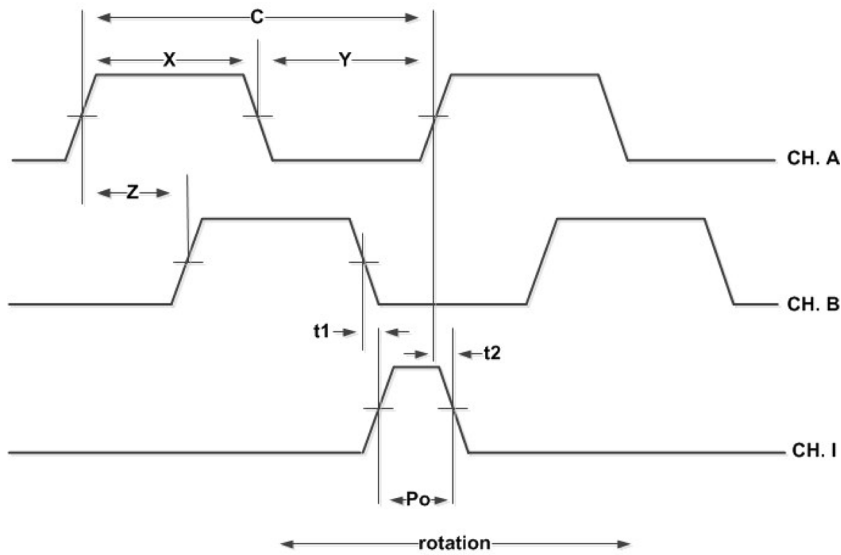


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DIMENSIONS



PINTIMING DIAGRAMS



SINGLE-ENDED ENCODER PINOUT
TOP OF ENCODER FACING PLUG

| Pin # | Function |
|-------|-------------|
| 1 | Ground |
| 2 | Index |
| 3 | A Channel |
| 4 | +5VDC Power |
| 5 | B Channel |

| Model # | Description | Parameter | Min | Typ | Max | Units |
|-----------------------------|---|---|-----|-----|-----|-------|
| CPR(N): | The Number of Cycles Per Revolution | Supply Voltage | 4.5 | 5.0 | 5.5 | Volts |
| One Shaft Rotation: | 360 mechanical degrees, N cycles | Supply Current | - | 18 | 26 | mA |
| One Electrical Degree (°e): | 1/360th of one cycle | High Level Output Voltage* (I _{OH} = 4 mA, V _{CC} = 5V) | 4.7 | 4.9 | - | Volts |
| One Cycle (C): | 360 electrical degrees (°e). Each cycle can be decoded into 1 or 4 codes, referred to as X1 or X4 resolution multiplication | Low Level Output Voltage (I _{OL} = 4 mA, V _{CC} = 5V) | - | 0.1 | 0.4 | Volts |
| Symmetry: | A measure of the relationship between (X) and (Y) in electrical degrees, nominally 180 °e | Output Rise Time | - | 80 | 135 | ns |
| Quadrature (Z): | The phase lag or lead between channels A and B in electrical degrees, nominally 90 °e | Output Fall Time | - | 80 | 135 | ns |

| Parameter | Max | Units | Parameter | Typ | Units |
|-----------------------------|-----------|----------------------|---|-----|-------|
| Vibration (20Hz to 2kHz) | 20 | g | Symmetry (X, Y) | 180 | °e |
| Shaft Axial Play | +/- 0.010 | in. | Quadrature Delay (Z) | 90 | °e |
| Off-Axis Mounting Tolerance | 0.010 | in. | Index Pulse Width (Po) | 90 | °e |
| Acceleration | 250,000 | rad/sec ² | Ch. I Rise after Ch. B or Ch. A Fall (t1) | 10 | ns |
| | | | Ch. I Fall after Ch. B or Ch. A Rise (t2) | 10 | ns |

| Recommended Operating Conditions | Min | Max | Units |
|----------------------------------|-----|-----|-------|
| Temperature | -40 | 100 | °C |
| Supply Voltage | 4.5 | 5.5 | Volts |
| Load Capacitance | - | 100 | pF |
| Count Frequency | - | 200 | kHz |

| Speed Calculation | Units |
|-------------------------------|-------|
| All CPR Values (4,096/CPR)*48 | RPM |

*48,000 RPM is the maximum RPM due to mechanical limitations.

Cables

The following cables are compatible with Anaheim Automation's A16S series encoder. Select a cable length from the table below.

| Cable Part Number | Length |
|------------------------|--------|
| ENC-CBL-CA-DF5-SH-NC-1 | 1 ft. |
| ENC-CBL-CA-DF5-SH-NC-5 | 5 ft. |

Mating Connector

Hirose# DF525P0.8C

Screws

Pan Head, Phillips M1.6-0.35, length 3mm (Quantity = 2 Screws)

NOTE: For pricing and other information on cables and centering tools, please visit Accessories on our website.

Centering Tool

ENC-CTOOL-A16-059

Bore Size

059=1.5mm 079=2mm

Spacer Tool

ENC-A16-SPACER