

# 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)
- 1,000/1,024 to 16,000/16,384 Pulses per Revolution (PPR)
- 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

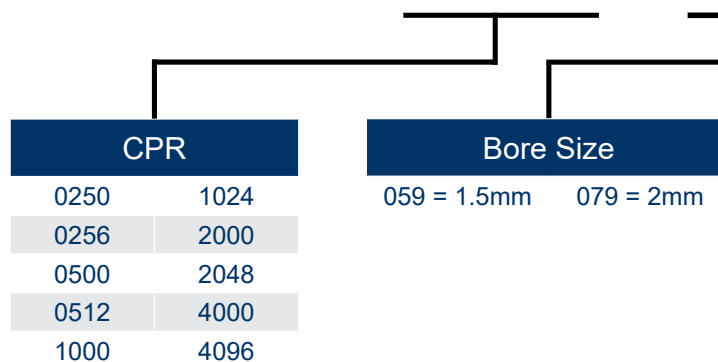


DESCRIPTION

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.

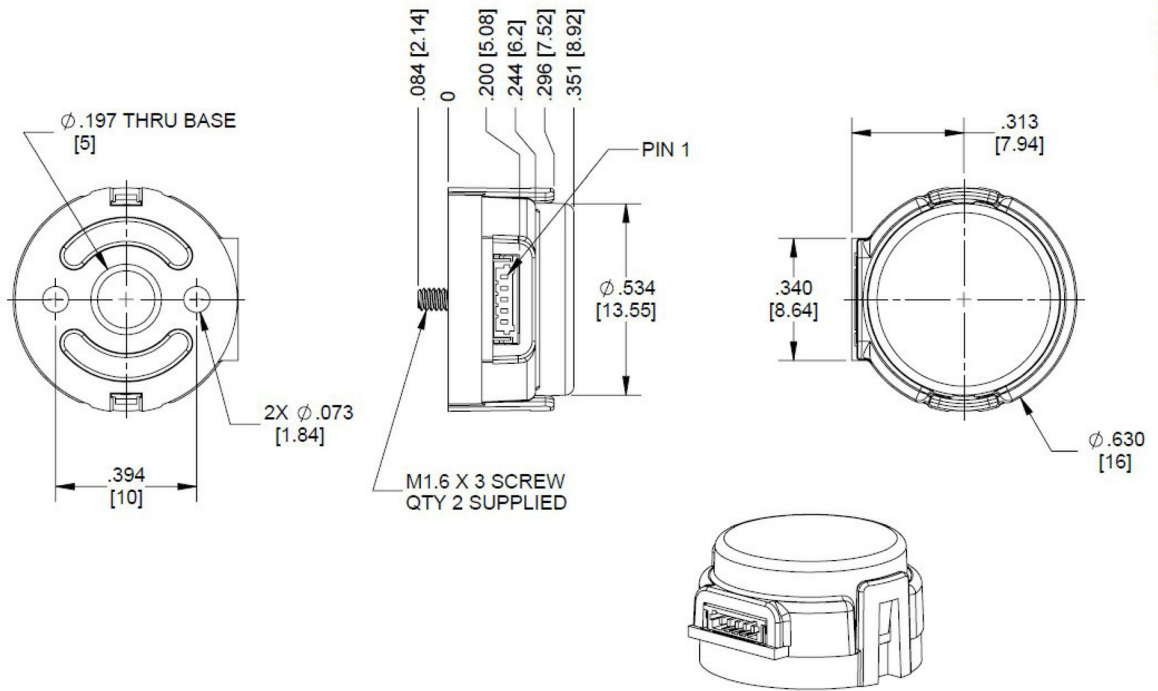
ORDERING INFORMATION

## ENC - A16S - 0250 - 059

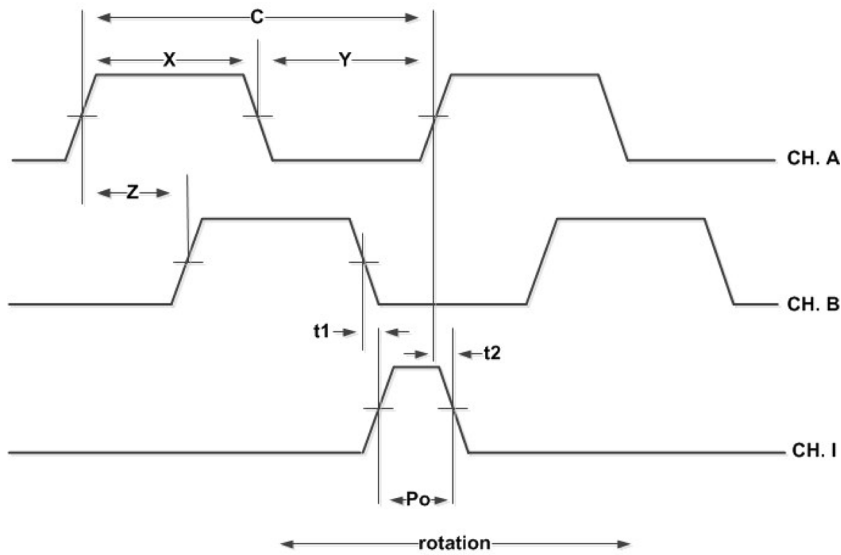


L011899

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 <sub>OH</sub> = 4 mA, V <sub>CC</sub> = 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 <sub>OL</sub> = 4 mA, V <sub>CC</sub> = 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 <sup>2</sup>	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

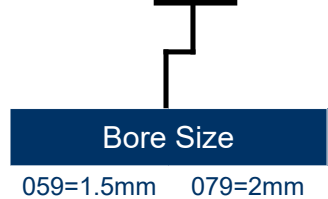
## Screws

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



## Spacer Tool

# ENC-A16-SPACER