

# ENC-A4PS Miniature Encoder without Index Channel



## FEATURES

- Miniature Size
- 100 to 360 Cycles per Revolution (CPR)
- Tracks 0 to 30,000 Cycles per Second
- 400 to 1,440 Pulses per Revolution (PPR)
- Off-Axis Mounting Tolerance of 0.010"
- 2-Channel Quadrature TTL Squarewave Outputs
- Operating Temperature of -10° to +85° C
- Powered from a Single +5VDC Power Supply



## DESCRIPTION

With an acceptable minimum shaft length of 0.375" and shaft sizes ranging from 0.059" to 0.250" in diameter, the ENC-A4PS is a single-ended miniature encoder designed for high volume applications with space limitations. The ENC-A4PS 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. This single-ended miniature encoder consists of LED source lens and a monolithic detector IC enclosed in a small polymer package. These modules implement phased array detector technology providing superior performance and tolerances over traditional aperture mask type encoders. The ENC-A4PS series provides digital quadrature outputs on all resolutions and are capable of sinking or sourcing 8 mA each. These encoders are powered from a single +5VDC power supply and are RoHS compliant.

## ORDERING INFORMATION

# ENC - A4PS - 0100 - 250 - H - M

CPR	
0100	0200
0108	0250
0120	0256
0125	0300
0128	0360

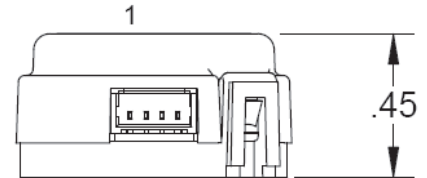
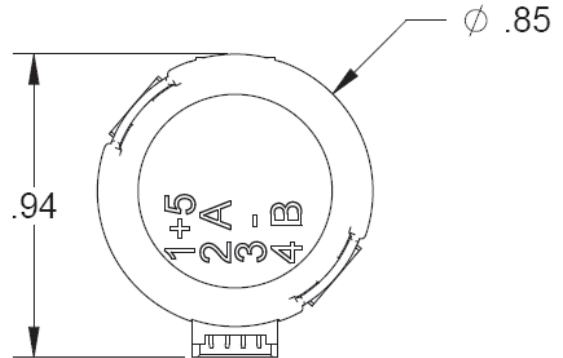
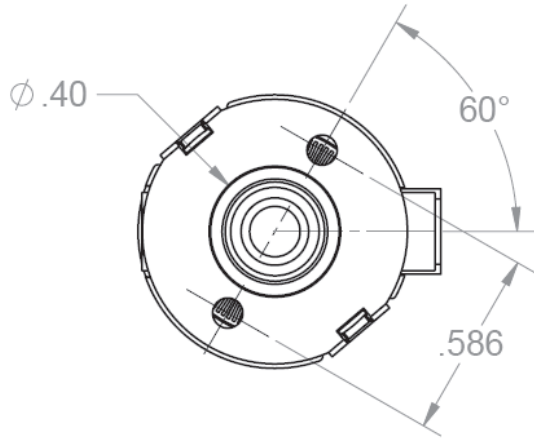
Bore Size	
079 = 2mm	157 = 4mm
091 = 2.3mm	188 = 3/16"
098 = 2.5mm	197 = 5mm
118 = 3mm	236 = 6mm
125 = 1/8"	250 = 1/4"

Cover Options
H = Hole in Cover
Blank = Default

Base Options
M = Metric Mounting Screws
T = Transfer Adhesive
Blank = Default

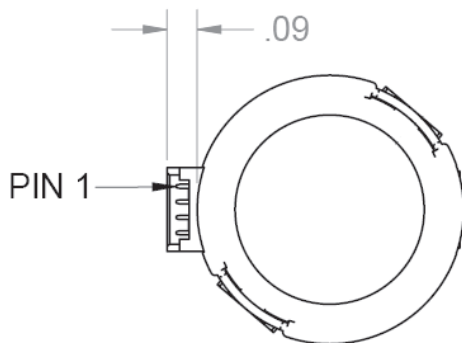
L010725

**DEFAULT OPTION:**



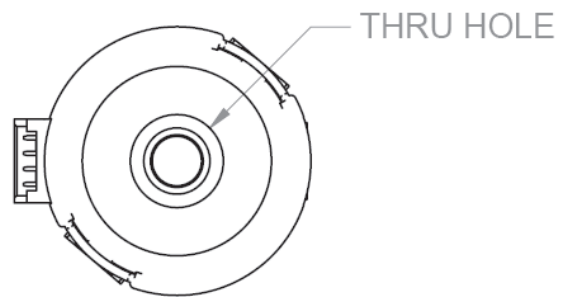
Note: Dimensions are in inches

**Default Option:**



3-48 X 1/4" MOUNTING SCREWS SUPPLIED WITH THIS OPTION.

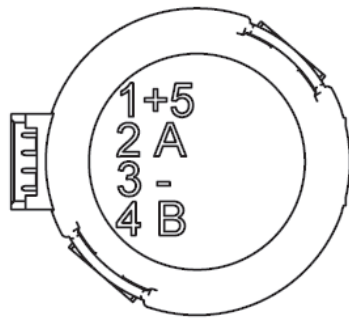
**H-Option:**



FOR SHAFT DIAMETERS OF 1.5mm TO 1/8", A 0.170" HOLE IS SUPPLIED.  
FOR SHAFT DIAMETERS OF 5/32" TO 1/4", A 0.295" HOLE IS SUPPLIED.

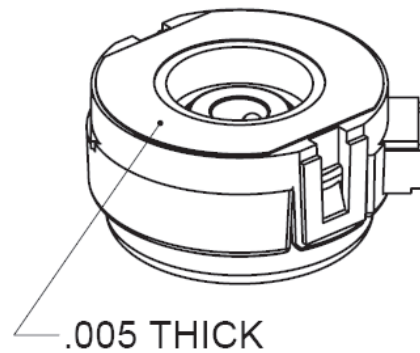
Note: Dimensions are in inches

**M-OPTION:**



M-Option: M2.5 X 6mm mounting screws are supplied with this option.

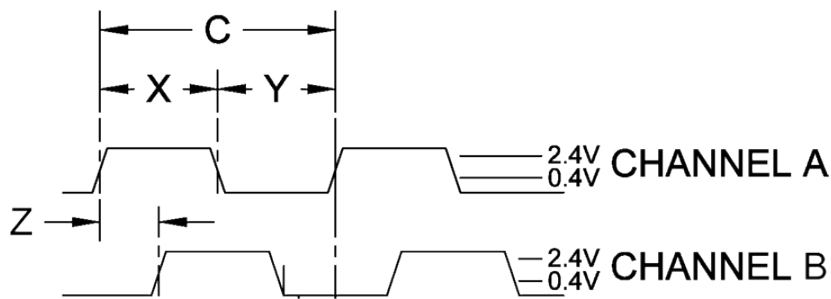
**T-OPTION:**



T-Option: A pre-applied transfer adhesive (with peel-off backing) is available for "stick-on" mounting

Note: Dimensions are in inches

**SINGLE-END ENCODER TIMING DIAGRAMS**



**ROTATION:**  
CW - B LEADS A, CCW - A LEADS B

**SINGLE-ENDED ENCODER PINOUT**  
TOP OF ENCODER FACING PLUG

Pin #	Function	ENC-CBL-CA3285-1 ENC-CBL-CA3286-1
1	+5VDC	Orange or Red
2	Channel A	Blue or Green
3	Ground	Brown or Black
4	Channel B	Yellow

Model #	Description	Parameter	Min	Typ	Max	Units
CPR(N):	The Number of Cycles Per Revolution	Supply Current (No Load)	-	21	27	mA
One Shaft Rotation:	360 mechanical degrees, N cycles	High Level Output Voltage* ( $I_{OL} = 6 \text{ mA}$ )	2.4	-	-	Volts
One Electrical Degree ( $^{\circ}e$ ):	1/360th of one cycle	Low Level Output Voltage ( $I_{OH} = -1 \text{ mA}$ )	-	-	0.4	Volts
One Cycle (C):	360 electrical degrees ( $^{\circ}e$ ). Each cycle can be decoded into 1 or 4 codes, referred to as X1 or X4 resolution multiplication	Rise Time ( $CL = 25 \text{ pF}$ , $RL = 2.7 \text{ k}\Omega$ )	-	500	-	ns
Symmetry:	A measure of the relationship between (X) and (Y) in electrical degrees, nominally $180^{\circ}e$	Fall Time	-	100	-	ns
Quadrature (Z):	The phase lag or lead between channels A and B in electrical degrees, nominally $90^{\circ}e$	* Unloaded high level output voltage is 4.80V typically, 4.2V minimum.				

Parameter	Max	Units	Parameter	Typ	Units
Vibration (5 to 2kHz)	20	g	Symmetry, S	$180 \pm 16$	$^{\circ}e$
Shaft Axial Play	+/- 0.02	in.	Quadrature Delay, Q	$90 \pm 12$	$^{\circ}e$
Off-Axis Mounting Tolerance	0.010	in.			
Acceleration	250,000	rad/sec <sup>2</sup>			

Recommended Operating Conditions	Min	Max	Units	Speed Calculation	Units
Temperature	-40	100	$^{\circ}C$	All CPR Values ( $(30,000/\text{CPR}) * 60$ )	RPM
Supply Voltage	4.5	5.5	Volts	*60,000 RPM is the maximum RPM due to mechanical limitations.	
Load Capacitance	-	100	pF		
Count Frequency	-	100	kHz		

## Cables:

The following cables are compatible with Anaheim Automation's A4PS series encoder. Select a cable length from the table below:

Cable Part Number	Length
ENC-CBL-CA3285-1	1 ft.
ENC-CBL-CA3286-6	6 ft.

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

## Centering Tools:

Centering tools are optional, but recommended for a more precise installation.

## ENC-MCTOOL - 250

Bore Size	
059=1.5mm	188=3/16"
079=2mm	197=5mm
125=1/8"	236=6mm
156=5/32"	250=1/4"
157=4mm	