

ENC-A2N Single-Ended Encoder without Index Channel



FEATURES

- Accepts +/- 0.010" Axial Shaft Play
- 32 to 1024 Cycles per Revolution (CPR)
- Tracks 0 to 100,000 Cycles per Second
- 128 to 4,096 Pulses per Revolution (PPR)
- 2-Channel Quadrature TTL Squarewave Outputs
- Operating Temperature of -40° to +100° C
- RoHS Compliant and REACH Certified



DESCRIPTION

The ENC-A2N, without index, is a single-ended, transmissive optical encoder module designed to detect the rotary position with a code wheel. The ENC-A2N requires a minimum shaft length of 0.445" and is compatible with shaft sizes ranging from 0.079" to 0.394" in diameter. This encoder type can be attached to the end of any shaft to provide digital feedback information. This single-ended encoder consists of a LED source lens and a monolithic detector technology providing superior performance and tolerances over traditional aperture mask type encoders. The ENC-A2N series without index provides digital quadrature squarewave 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 and REACH certified.

ORDERING INFORMATION

ENC - A2N - 0050 - 394 - H - G

CPR		
0032	0192	512
0050	0200	0540
0096	0250	1000
0100	0360	1016
0110	0400	1024
0120	0500	

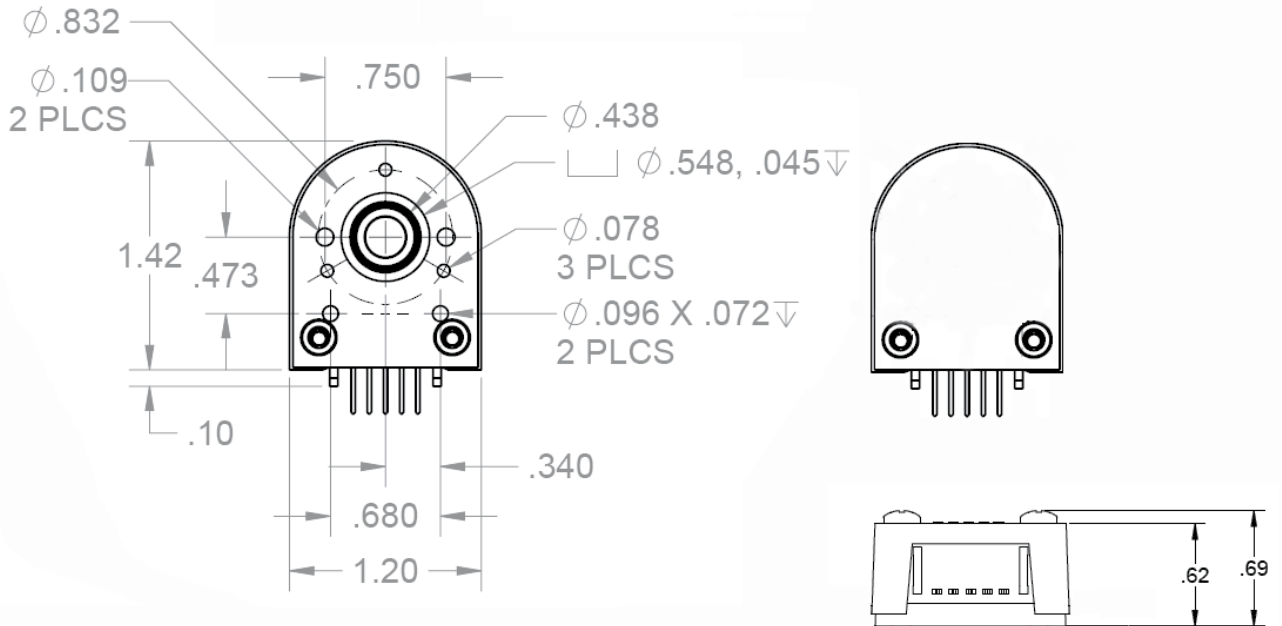
Bore Size	
079=2mm	236=6mm
118=3mm	250=1/4"
125=1/8"	276=7mm
157=4mm	313=5/15"
188=3/16"	375=3/8"
197=5mm	394=10mm

Cover Options
E = Cover Extension
H = Hole in Cover
Blank = Default

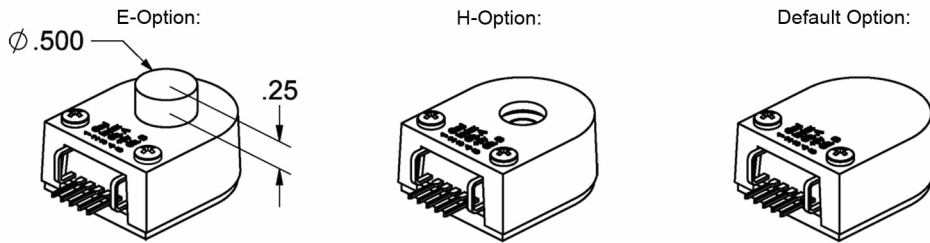
Base Options
3 = Base Mounting Holes Become 0.125"
A = Adds Self-Aligning Shoulder to Base
G = Adds 1.812" Mounting Ears to Base
R = Adds 3-Slot Adapter to Bottom of Base
T = Transfer Adhesive
Blank = Default

L010723

DEFAULT OPTION:



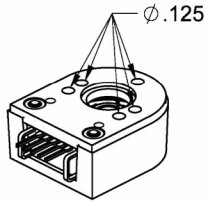
Note: Dimensions are in inches



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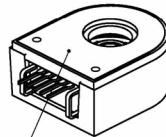
Cover Options:	Description
E - Option	E-Option provides a cylindrical extension cover for larger shafts. The required shaft length is .445" to .795". Note: E-option + R-Option the required shaft length is .570" to .920".
H - Option	Shaft < 0.375" - a 0.375" diameter hole is used Shaft ≥ 0.375" or larger - a 0.500" diameter hole is used Minimum Shaft Length: greater than 0.445" Note: H-Option + R-Option the required shaft length is > .570"
Default	The required length is .445" to .570" Note: Default Option + R-Option the required shaft length is .570" to .695"

3-OPTION:



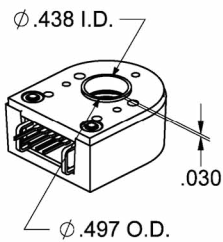
3-Option: Makes all five hole diameters .125"

T-OPTION:



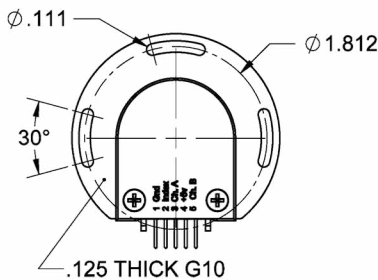
.005 THICK
T-Option: A pre-applied transfer adhesive (with peel-off backing) is available for "stick-on" mounting.

A-OPTION:



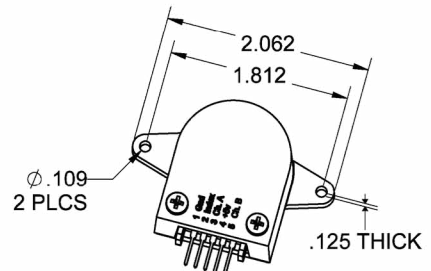
A-Option: Adds a .497" diameter alignment shoulder designed to slip into a .500" diameter recess in the mounting surface centered around the shaft.

R-OPTION:



R-Option: Adapter is an 1/8" thick fiberglass adapter which is pre-mounted to the base of the encoder. It allows the encoder to rotate +/- 15 degrees.
*This option adds 1/8" to the required shaft length.

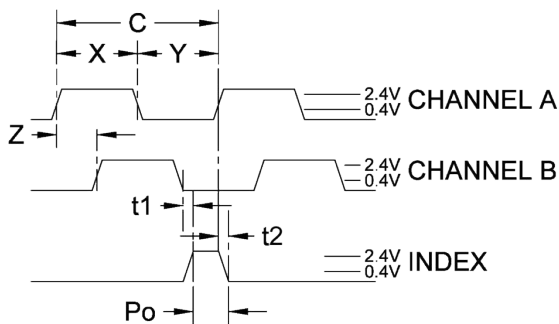
G-OPTION:



G-Option: Includes molded ears which enables it to be mounted to a 1.812" diameter bolt circle. Mounting holes are designed to fit 4-40 screws. Will work with shaft lengths of .445" to .570" and does not add to the required shaft length.

Note: All dimensions are in inches

SINGLE-END ENCODER TIMING DIAGRAMS



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

SINGLE-ENDED ENCODER PINOUT
TOP OF ENCODER FACING PLUG

Pin #	Function
1	Ground
2	N/C
3	Channel A
4	+5VDC Input
5	Channel B

Model #	Description
CPR(N):	The Number of Cycles Per Revolution
One Shaft Rotation:	360 mechanical degrees, N cycles
One Electrical Degree (°e):	1/360th of one cycle
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
Symmetry:	A measure of the relationship between (X) and (Y) in electrical degrees, nominally 180 °e
Quadrature (Z):	The phase lag or lead between channels A and B in electrical degrees, nominally 90 °e
Index (CH I):	The Index Output goes high once per revolution, coincident with the low states of channels A and B, nominally 1/4 of one cycle (90°e)

Timing Characteristics	Symbol	Min	Typ	Max	Units
Cycle Error	C	-	3.0	5.5	°e
Symmetry	X,Y	150	180	210	°e
Quadrature	Z	60	90	120	°e
Index Pulse Width	Po	60	90	120	°e
Ch. I Rise After Ch. B or Ch. A Fall	t1	10	100	250	ns
Ch. I Fall After Ch. B or Ch. A Rise	t2	70	150	300	ns

Parameter	Max	Units
Vibration (5 to 2kHz)	20	g
Shaft Axial Play	+/- 0.01	in.
Shaft Eccentricity Plus Radial Play	0.004	in.
Acceleration	250,000	rad/sec ²

Parameter	Min	Typ	Max	Units
Supply Current				
CPR < 500, no load	-	27	30	mA
CPR ≥ 500, no load	-	55	57	mA
Output Low (I_{OL} = 8mA max)	-	-	0.5	Volts
Output High*				
I _{OL} = -8mA max	2.0	-	-	Volts
no load	4.2	4.8	-	Volts
Output Current Per Channel	-8.0	-	8.0	mA
Output Rise Time		110		nS
Output Fall Time		35		nS

* Unloaded high level output voltage is 4.80V typically, 4.2V minimum.

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

Cables:

The following cables are compatible with Anaheim Automation's A2N series encoder. Select a cable length from the table below:

Cable Part Number	Length
CBL-AA4032	1 ft.
CBL-AA4032-04	4 ft.
CBL-AA4032-10	10 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-CTOOL - 250

Bore Size	
079=2mm	236=6mm
118=3mm	250=1/4"
125=1/8"	276=7mm
157=4mm	313=5/15"
188=3/16"	375=3/8"
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