

ENC-A2I Single-Ended Encoder with Index Channel



FEATURES

- Accepts +/- 0.010" Axial Shaft Play
- 50 to 1250 Cycles per Revolution (CPR)
- Tracks 0 to 100,000 Cycles per Second
- 200 to 5,000 Pulses per Revolution (PPR)
- Powered From a Single +5VDC Power Supply
- 2-Channel Quadrature TTL Squarewave Outputs
- Third Channel Index
- Operating Temperature of -40° to +100° C
- Powered from a Single +5VDC Power Supply
- RoHS Compliant and REACH Certified

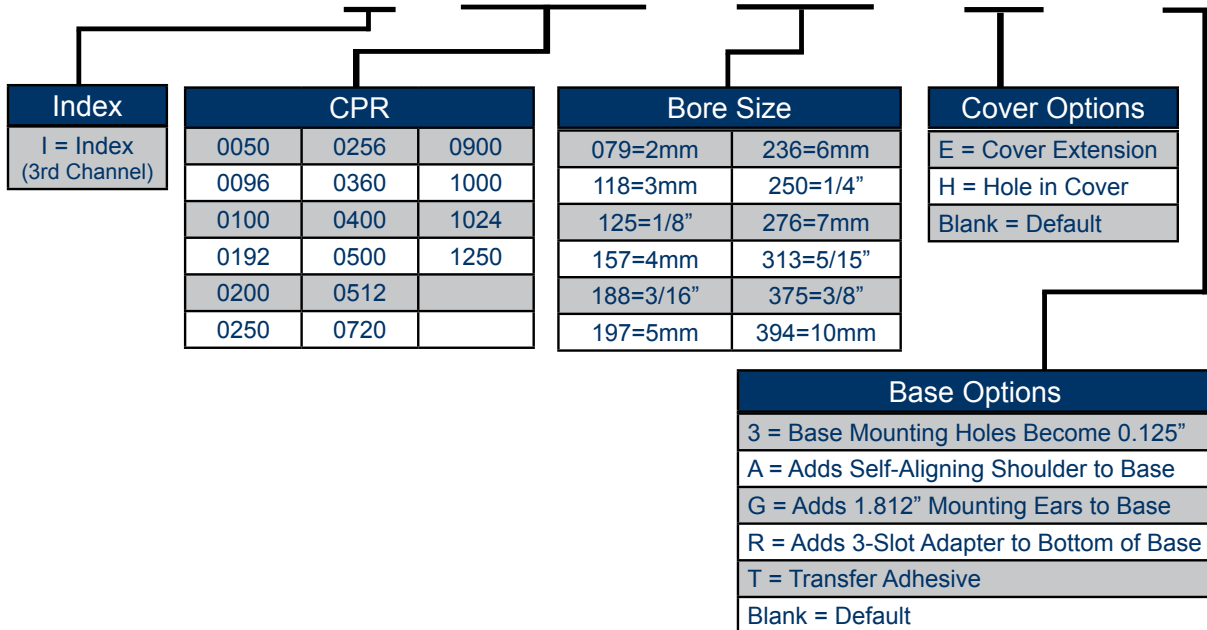


DESCRIPTION

The ENC-A2I is a single-ended, transmissive optical encoder module designed to detect the rotary position with a code wheel. The ENC-A2I requires a minimum shaft length of 0.445" and can be attached to shaft sizes ranging from 0.079" to 0.394" in diameter to provide digital feedback information. This single-ended encoder consists of a 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-A2I series provides digital quadrature squarewave outputs on all resolutions and are capable of sinking or sourcing 8mA each. These encoders are powered from a single +5VDC power supply and are RoHS compliant and REACH certified.

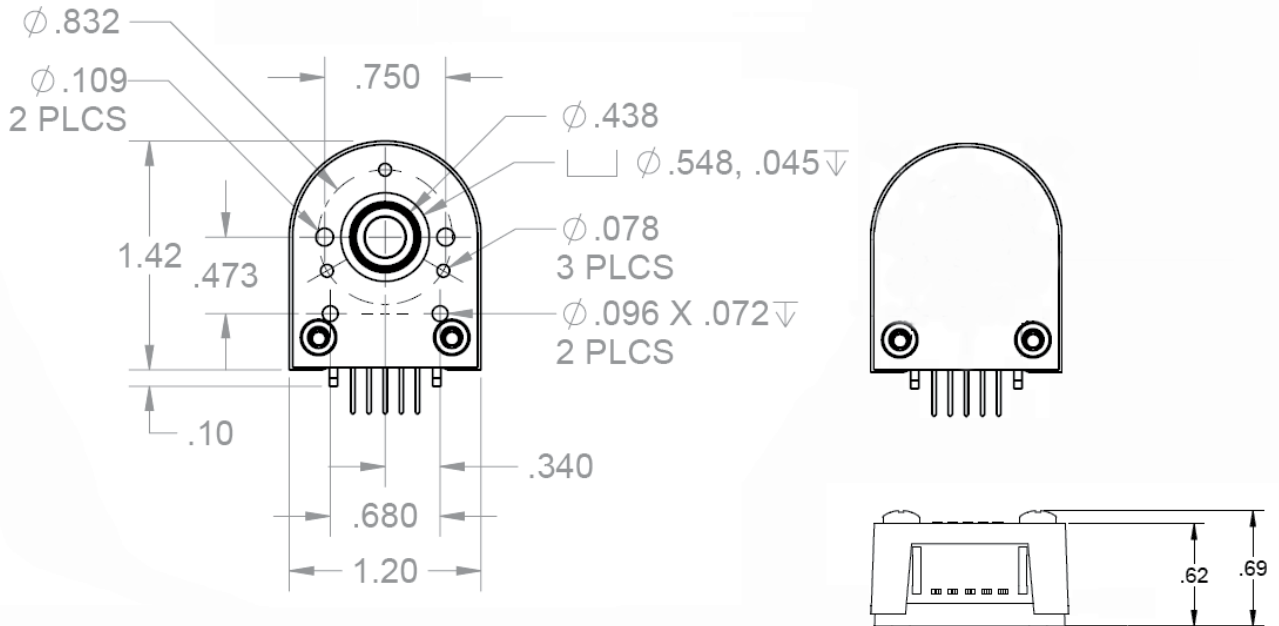
ORDERING INFORMATION

ENC - A2I - 0050 - 394 - H - G

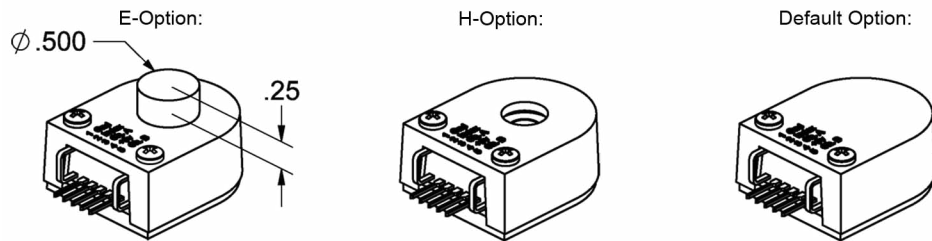


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DEFAULT OPTION:



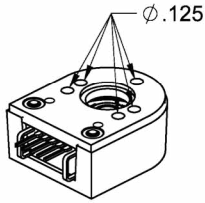
Note: Dimensions are in inches



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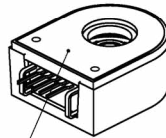
Cover Options:	Description
E - Option	E-Option provides a cylindrical extension cover for larger shafts. The required shaft length is $.445"$ to $.795"$. Note: E-option + R-Option the required shaft length is $.570"$ to $.920"$.
H - Option	Shaft $< 0.375"$ - a $0.375"$ diameter hole is used Shaft $\geq 0.375"$ 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:



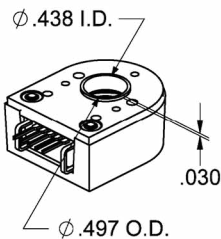
3-Option: Makes all five hole diameters .125"

T-OPTION:



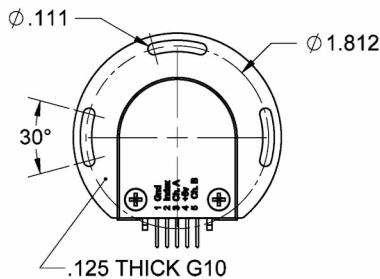
.005 THICK
T-Option: A pre-applied transfer adhesive (with peel-off backing) is available for "stick-on" mounting.

A-OPTION:



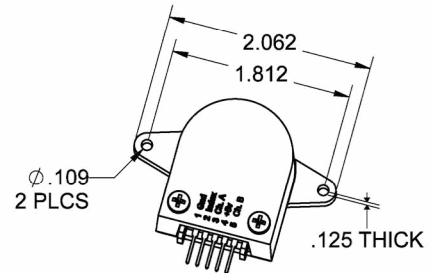
A-Option: Adds a .497" diameter alignment shoulder designed to slip into a .500" diameter recess in the mounting surface centered around the shaft.

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.

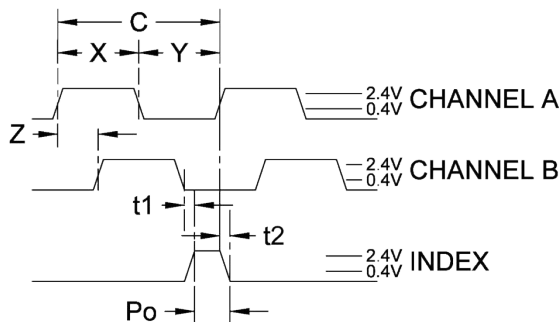
G-OPTION:



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	Index
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)

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.

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

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

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

Cables:

The following cables are compatible with Anaheim Automation's A21 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"
197=5mm	394=10mm