

# Single Ended Encoders With Index Channel



## FEATURES

- **Small Size, Pre-Mounted to Dual Shaft Motor**
- **32 to 1250 Cycles per Revolution (CPR)**
- **Tracks 0 to 100,000 Cycles per Second**
- **2-Channel Quadrature TTL Squarewave Outputs**
- **Third Index Channel**
- **Accepts +/- 0.010" Axial Shaft Play**
- **Operating Temperature of -40° to + 100° C**
- **RoHS Compliant and REACH Certified**



## DESCRIPTION

Our Single-Ended Encoders with an Index channel are transmissive optical encoder modules. These modules are designed to detect rotary position with a codewheel when added to the end of an Anaheim Automation dual shaft motor. These Single-Ended Encoders consist of a lensed LED source and a monolithic detector IC enclosed in a small polymer package. These modules use phased array detector technology to provide superior performance and greater tolerances over traditional aperture mask type encoders. They provide digital quadrature outputs, and come standard with a third index channel output on all resolutions and are capable of sinking or sourcing 8mA each. These encoders are powered from a single +5VDC power supply. Also, they are RoHS compliant and REACH certified.

## DIMENSIONS AND PINOUTS

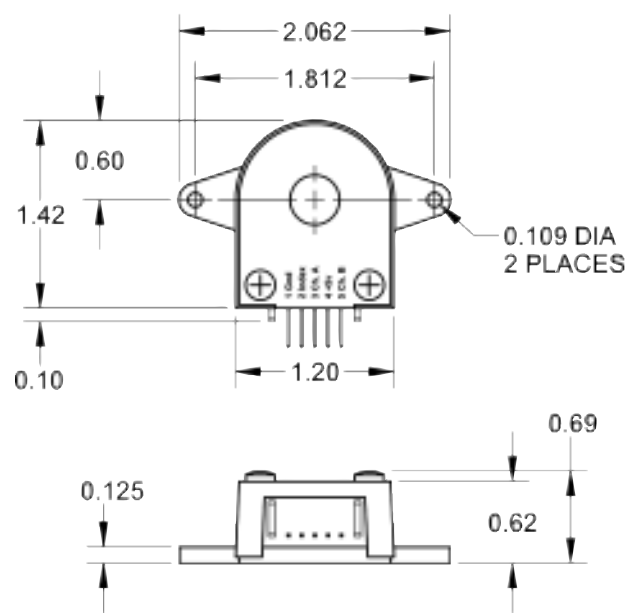
**Example:** To order an encoder, add a “ - ”, the CPR number and a SI on the end of any Anaheim Automation dual shaft motor. For example, to place a 1000 CPR encoder on a 23Y106D-LW8, the part number would be 23Y106D-LW8-1000SI.

# 23Y106D-LW8-1000SI

Table 1		32SI	50SI	96SI	100SI	192SI	200SI	250SI	256SI	360SI	400SI	500SI	512SI	720SI	900SI	1000SI	1024SI	1250SI
Parameter																		
Fits NEMA Size		11-42	11-42	11-42	11-42	11-42	11-42	11-42	11-42	11-42	11-42	11-42	11-42	11-42	11-42	11-42	11-42	11-42
Cycles Per Revolution		32	50	96	100	192	200	250	256	360	400	500	512	720	900	1000	1024	1250

L010390

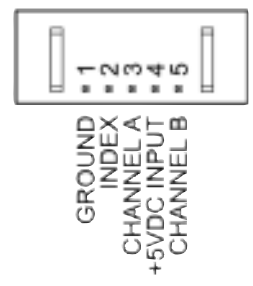
**DIMENSIONS**



Note: All dimensions are in inches.

**SINGLE-END ENCODER PINOUT**

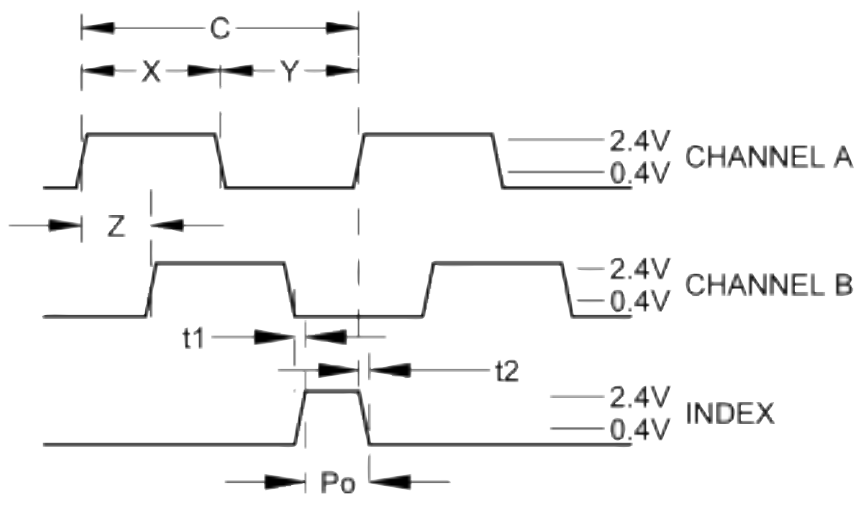
TOP OF ENCODER FACING PLUG



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 <sup>2</sup>

ELECTRICAL SPECIFICATIONS

**SINGLE-END ENCODER TIMING DIAGRAMS**



**Rotation:**  
 CW - B leads A  
 CCW - A Leads 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
<b>Supply Current</b>				
32 CPR only	-	27	30	mA
720, 1000, 1024, 1250 CPR Only	-	55	57	mA
All Other Resolutions	30	57	85	mA
<b>Output Low</b>				
32, 720, 1000, 1024, 1250 CPR Only	-	-	0.5	Volts
All Other Resolutions	-	-	0.4	Volts
<b>Output High*</b>				
32, 720, 1000, 1024, 1250 CPR Only	2.0	-	-	Volts
All Other Resolutions	2.4	-	-	Volts
<b>Output Current Per Channel</b>				
32, 720, 1000, 1024, 1250 CPR Only	-8.0	-	8.0	mA
All Other Resolutions	-1.0	-	5.0	mA

Description	Symbol	Min	Typ	Max	Units
<b>Index Pulse Width</b>					
All Resolutions	Po	60	90	120	°e
<b>Ch. I Rise After Ch. B or Ch. A Fall</b>					
32, 720,1000, 1024, 1250 CPR only	t1	10	100	250	ns
All Other Resolutions	t1	-300	100	250	ns
<b>Ch. I Fall After Ch. A or Ch. B Rise</b>					
32, 720,1000, 1024, 125 CPR only	t2	70	150	300	ns
All Other Resolutions	t2	70	150	1000	ns

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

Cable Ordering Info	Length
CBL-AA4032	1 ft.
CBL-AA4032-04	4 ft.
CBL-AA4032-10	10 ft.

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