

# ENC-A8TD Miniature Differential Encoder Without Index



## FEATURES

- Miniature Size
- 180 to 720 Cycles Per Revolution (CPR)
- Tracks 0 to 100,000 Cycles Per Second
- 720 to 2880 Pulses Per Revolution (PPR)
- Fits Shaft Diameters of .118" to .375"
- Maximum Shaft Axial Play of  $\pm .010$ "
- Operating Temperature of  $-20^{\circ}$  to  $+100^{\circ}$  C
- Powered from a Single +5 VDC Power Supply



## DESCRIPTION

With an acceptable minimum shaft length of .295" and shaft sizes ranging from .118" to .375" in diameter, the ENC-A8TD is a differential miniature encoder designed for high volume applications with space limitations. The ENC-A8TD 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 differential miniature encoder consists of an LED source lens and 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-A8TD 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.

## CUSTOM ORDER LAYOUT

# ENC - A8TD - 0180 - 118 - H - M

CPR	
0180	0400
0200	0500
0250	0512
0256	0720
0360	

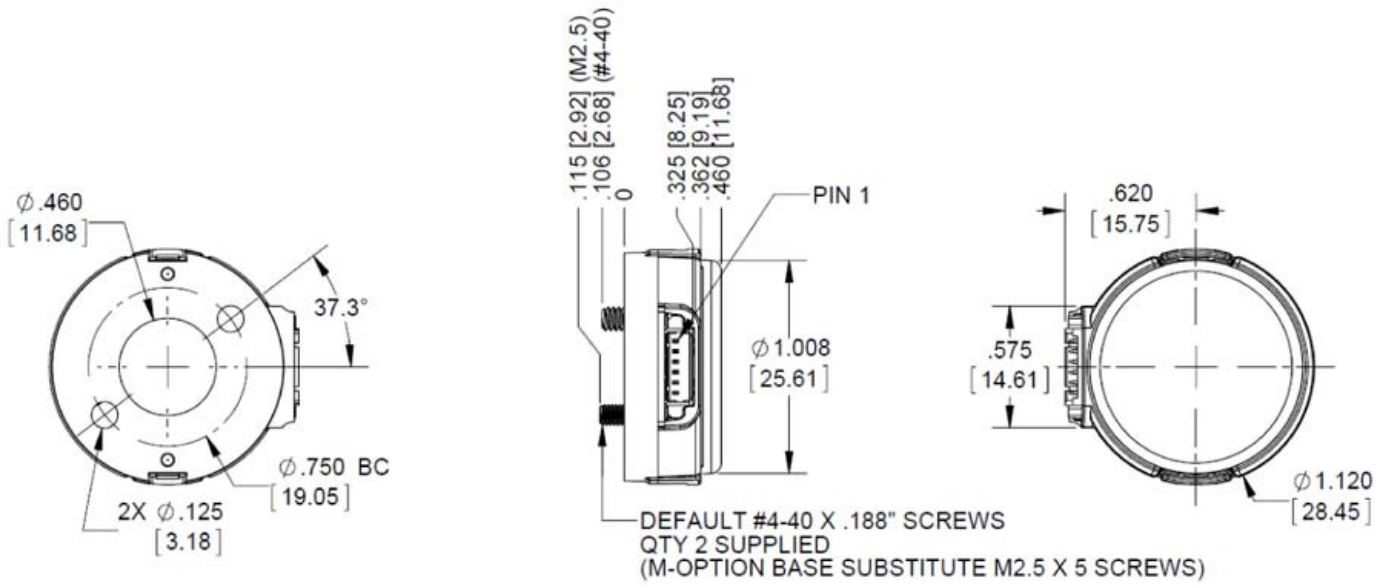
Bore Size	
118 = .118"	236 = .236"
125 = .125"	250 = .250"
156 = .156"	276 = .276"
157 = .157"	315 = .315"
197 = .197"	375 = .375"

Cover Options
H = Hole in Cover
Blank = Default

Base Options
M = Metric Mounting Screws
G = Adds 1.28" Bolt Circle Mount
Blank = Default

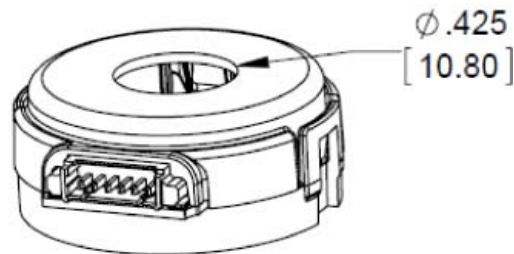
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DIMENSIONS

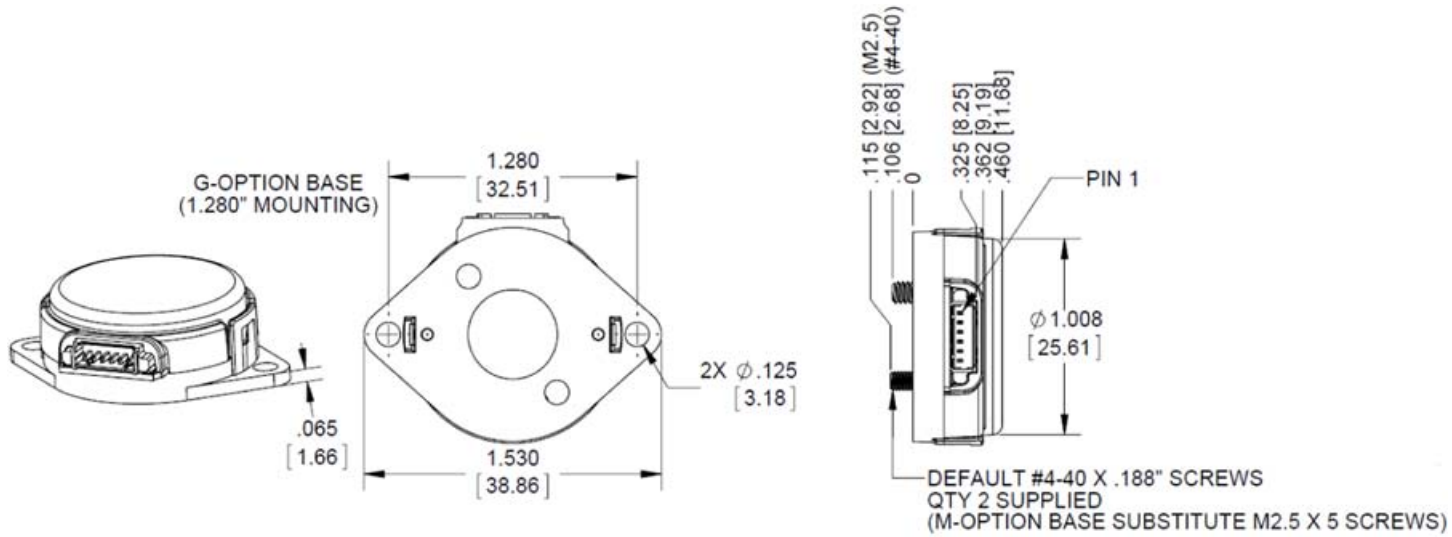


COVER OPTIONS

H-OPTION COVER  
(COVER HOLE FOR EXTENDED SHAFTS)

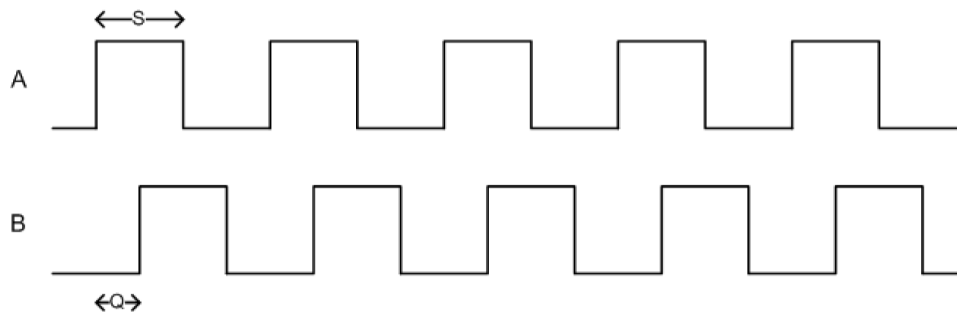


BASE OPTIONS



PIN/TIMING DIAGRAMS

DIFFERENTIAL ENCODER TIMING DIAGRAMS



DIFFERENTIAL ENCODER PINOUT  
TOP OF ENCODER FACING PLUG

Pin #	Function
1	GND
2	A Channel
3	A- Channel
4	+5VDC
5	B Channel
6	B- Channel

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

Parameter	Max	Units	Recommended Operating Conditions	Min	Max	Units
Vibration (20Hz to 2kHz)	20	g	Temperature	-20	100	°C
Shaft Axial Play	± .010	in.	Max Relative Humidity	-	90	%
Shaft Runout (TIR)	.002	in.	Load Capacitance	-	100	pF
Acceleration	250,000	rad/sec <sup>2</sup>	Count Frequency	-	100	kHz

Parameter	Min	Typ	Max	Units	Parameter	Typ	Units
Supply Voltage	4.5	5.0	5.5	Volts	Symmetry, S	180	°e
Supply Current (No Load)	-	27	32	mA	Quadrature Delay, Q	90	°e
Differential Output Voltage (RL = 100 ohm)	3.0	3.8	-	Volts			
Differential Output Rise/Fall Time	-	-	20	ns			

Speed Calculation	Units
All CPR Values (30,000/CPR)*60	RPM

\*60,000 RPM is the maximum RPM due to mechanical limitations.

## Cables:

The following cables are compatible with Anaheim Automation's A8TD series encoder. Select a cable length from the table below:

Cable Part Number	Length
ENC-CBL-CA-MIC6-SH-NC-1	1 ft.
ENC-CBL-CA-MIC6-SH-NC-5	5 ft.
ENC-CBL-CA-MIC6-SH-NC-10	10 ft.
ENC-CBL-CA-MIC6-SH-NC-20	20 ft.

## Mating Connector:

Micro mating connector shell (Molex# 51021-0600) and 6 pins for 26-28 AWG wires (Molex # 50079-8100)

*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	