

GURLEY MODEL A37 ABSOLUTE ENCODER

MOTION TYPE:

ROTARY

USAGE GRADE:

INDUSTRIAL

OUTPUT:

ABSOLUTE

MAX RESOLUTION:

12 BIT



SMALL ENCODER - HIGH RESOLUTION

The model **A37** mini encoder is a single-turn absolute rotary encoder with opto-electronic technology. This encoder is used in a wide variety of position-sensing applications for the measuring of angles and distances in relatively small envelopes. Mechanical features include a 37-mm aluminum housing, a 3 - 5 mm (or 1/8" - 1/4") dia stainless steel solid or blind hollow shaft, and precision ball bearings.

ingenuity[®]@work

ISO
9001
CERTIFIED

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SPECIFICATIONS

	Units	Limiting Values	See Note
Mechanical Specifications			
Moment of Inertia	in-oz-s ² (g-cm ²)	2.3 x 10 ⁻⁵ (1.7)	
Starting Torque	in-oz (Nm)	0.14 (0.001)	
Radial Shaft Load	lb (N)	1 (5)	
Axial Shaft Load	lb (N)	1 (5)	
Bearing Arrangement		2 pre-loaded bearings	
Bearings		Grease-lubricated and sealed	
Code Disk Type		etched chrome on glass	
Non-Operating Slew	RPM	10,000	
Acceleration	rad/s ²	3 x 10 ⁶	
Shock 11 (ms)	g	50	
Vibration (0-2000Hz)	g	15	
Sealing		IP64	2
Recommended Coupling	SCA		
Environmental Specifications			
Operating Temperature	°F (°C)	32 to 158 (0 to 70)	
Storage Temperature	°F (°C)	0 to 160 (-18 to 71)	
Relative Humidity	%	98	1
Electrical Specifications			
Supply Voltage	VDC	4.75 to 5.25, 5.00 nominal	
Current Consumption	mA	≤ 100	
LED Life	hours	≥ 100,000	
Output Code		Gray code or Natural binary	
Output Format		12 bit parallel, multiplexed bite-wide or serial	
Output Device		TTL, RS	
Accuracy		+/- 150 arc seconds	
Step Frequency LSB		standard 25 kHz (valid code) 100 kHz option @ 6,000 RPM (call for details)	

Notes

1. Non-condensing
2. Per CEI / IEC 529 - Degrees of protection provided by enclosures (IP Code)

As part of our continuing product improvement program, all specifications are subject to change without notice.

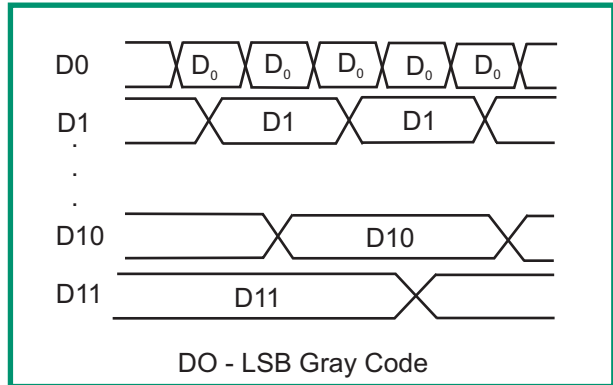


OUTPUT OPTIONS

Parallel Output without Output Enable (Gray Code)

Electrical Signal	Pin	Color
D0	1	Yellow
D1	2	Brown
D2	3	Green
D3	4	Yellow-white
D4	5	Blue
D5	6	White
D6	7	Violet
D7	8	Gray
D8	9	White-green
D9	10	Red-blue
D10	11	Pink
D11	12	Yellow-brown
0V	13	Black
+5V	14	Red
CASE	CASE	Shield

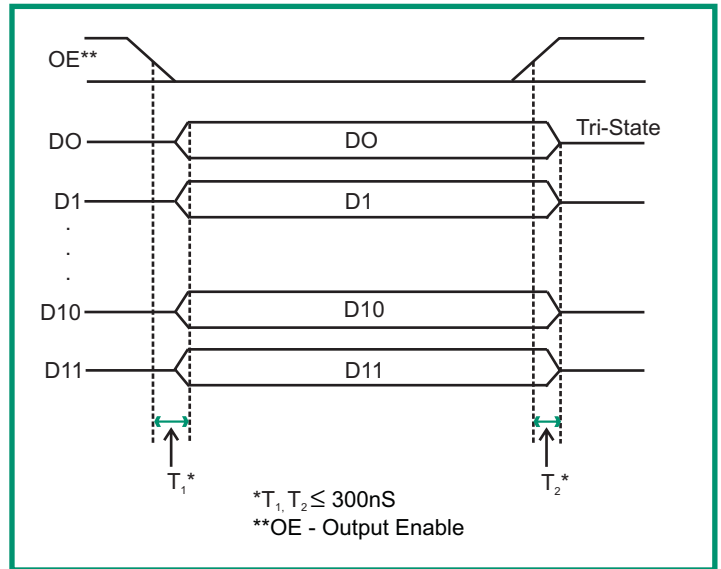
TIME DIAGRAM



Parallel Output with Output Enable (Gray Code or Binary)

Electrical Signal	Pin	Color
D0	1	Yellow
D1	2	Brown
D2	3	Green
D3	4	Yellow-white
D4	5	Blue
D5	6	White
D6	7	Violet
D7	8	Gray
D8	9	White-green
D9	10	Red-blue
D10	11	Pink
D11	12	Yellow-brown
0V	13	Black
+5V	14	Red
OE	15	Gray-Pink
CASE	CASE	Shield

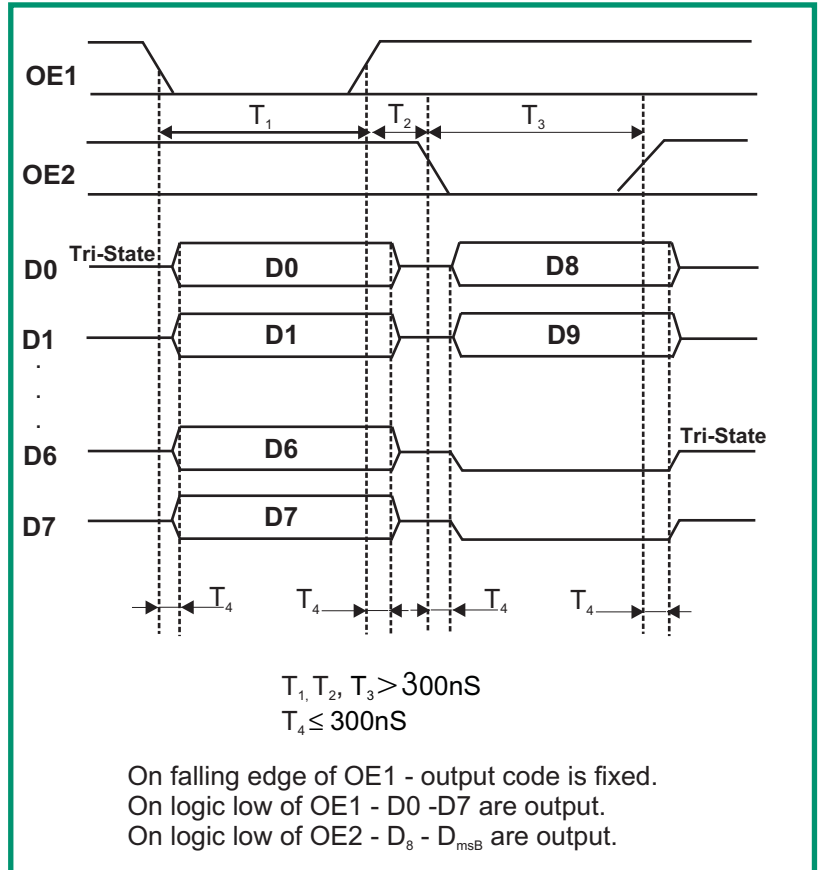
TIME DIAGRAM



OUTPUT OPTIONS

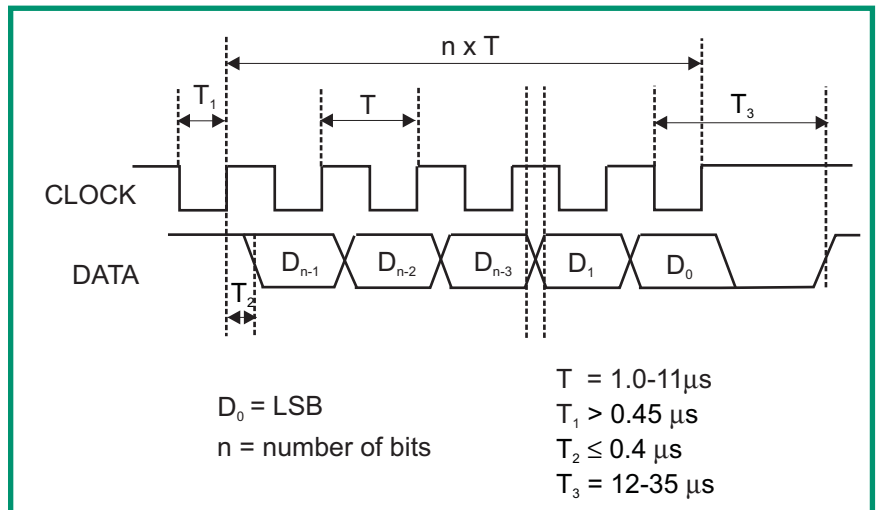
Multiplexed (byte-parallel) Gray code or Binary

Electrical Signal	Pin	Color
D0	1	Yellow
D1	2	Brown
D2	3	Green
D3	4	Yellow-white
D4	5	Blue
D5	6	White
D6	7	Violet
D7	8	Gray
OE1	10	Red-blue
OE2	11	Pink
0V	13	Black
+5V	14	Red
CASE	15	Shield



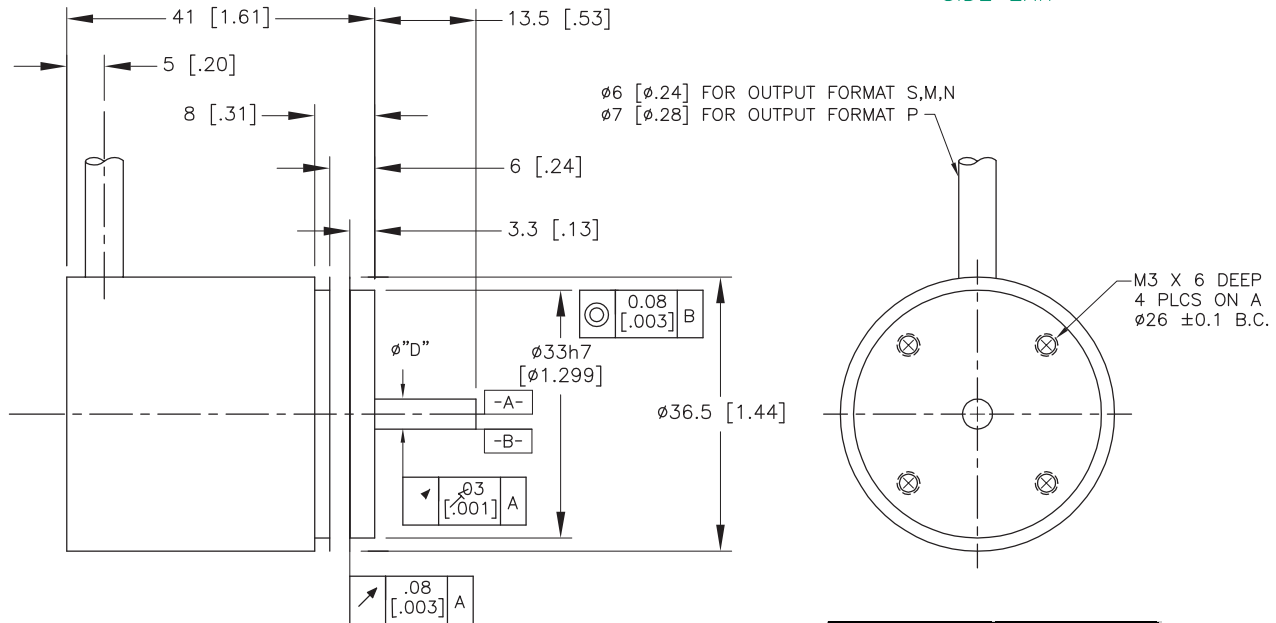
Serial Output - Gray code or Binary

Electrical Signal	Pin	Color
Case	1	Shield
Clock	2	Yellow
/ Clock	3	Brown
Data	6	Green
/ Data	7	Orange
0V	9	Black
+5V	5	Red

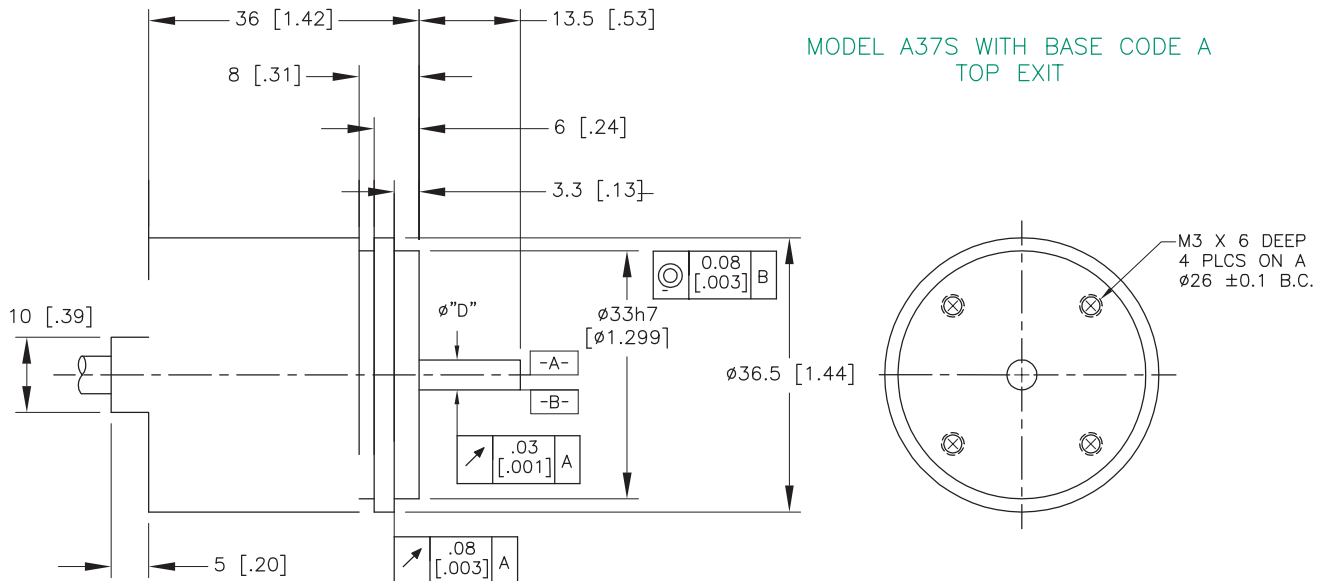


OUTLINE DIMENSIONS

MODEL A37S WITH BASE CODE A
SIDE EXIT



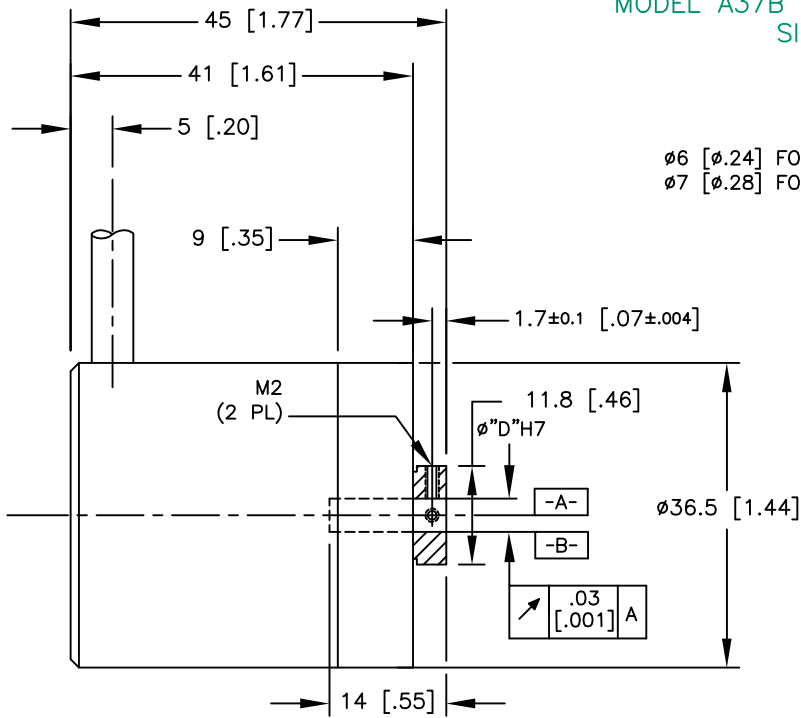
"D" DIA TABLE	
DIA	A37S
03M	3mm
04M	4mm
05M	5mm
02E	0.125"
04E	0.250"



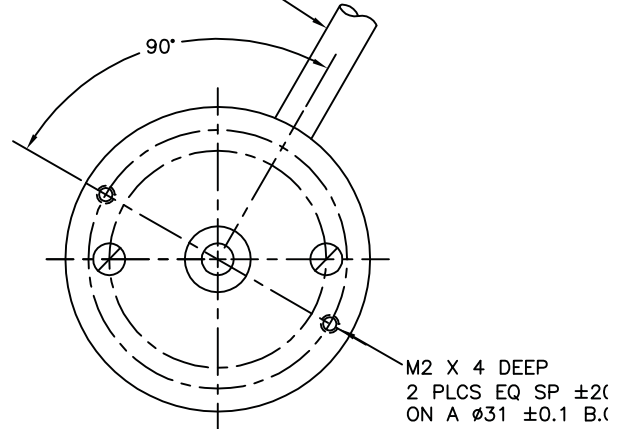
ALL DIMENSIONS IN mm [INCHES]

OUTLINE DIMENSIONS

MODEL A37B WITH BASE CODE B SIDE EXIT



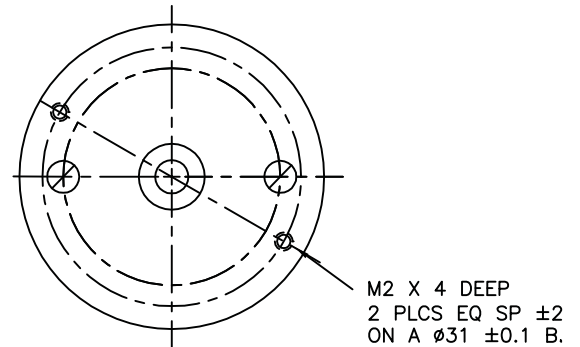
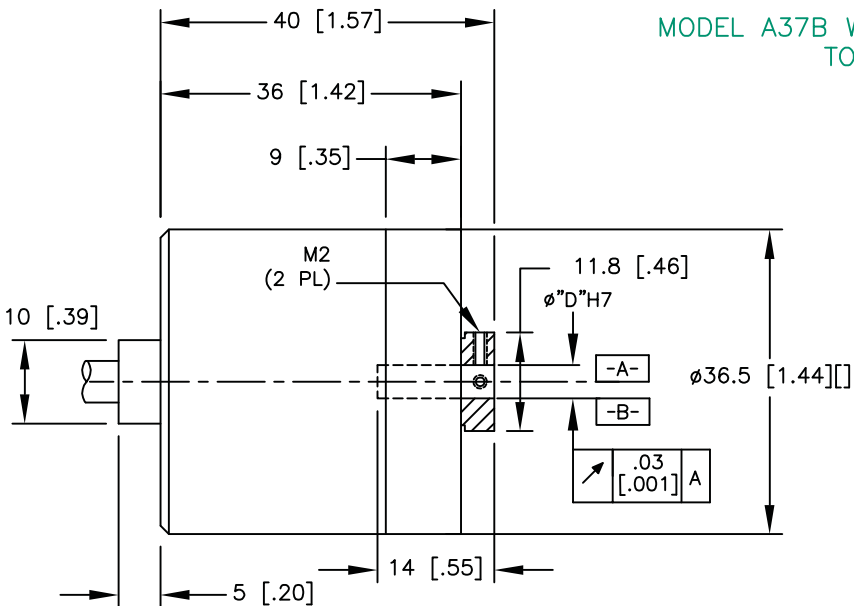
$\phi 6$ [$\phi 0.24$] FOR OUTPUT FORMAT S,M,N
 $\phi 7$ [$\phi 0.28$] FOR OUTPUT FORMAT P



ALL DIMENSIONS IN mm [INCHES]

"D" DIA TABLE	
DIA	A37B
03M	3mm
04M	4mm
05M	5mm
02E	0.125"

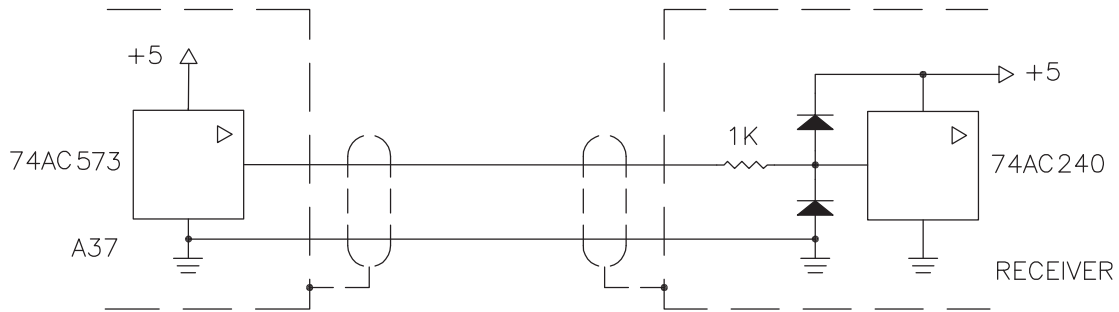
MODEL A37B WITH BASE CODE B TOP EXIT



OUTPUT SIGNALS AND RECOMMENDED CIRCUIT INTERFACE

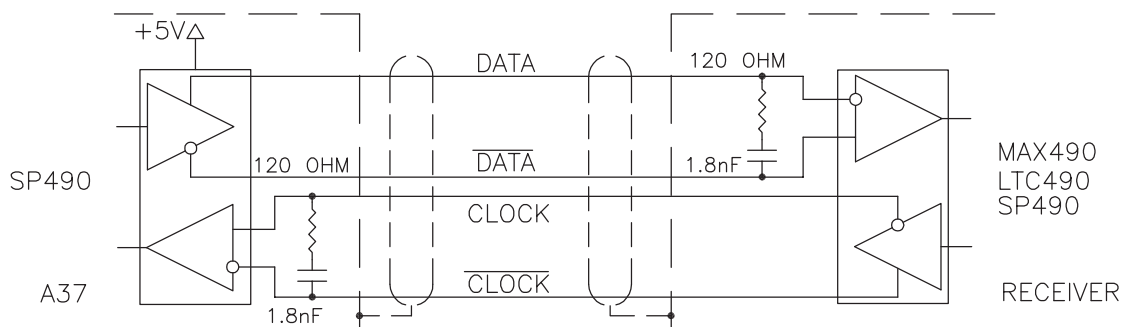
TTL:

$V_0 < 0.5V$ @ $I \leq 0mA$
WITH +5V POWER SUPPLY



SSI (RS422):

$V = +5V$



ORDERING INFORMATION

A37 Ordering Combinations

RES	OF	OC	OD	VOLT	CONN
12	S	B, G	RS	5	P, S
	P	B, G	TT	5	P, T
	N	G	TT	5	P, Q, R
	M	B, G	TT	5	P, Q, R

MODEL	SHAFT	RES	OF	OC	OD	VOLT	TEMP	BASE	EXIT	CAB	CONN	SHAFT	SPEC

MODEL
A37

SHAFT - Shaft type
S Solid shaft
B Blind Hollow Shaft

RES - Resolution
12 12Bit resolution

OF - Output Format
S SSI
P Parallel, Output Enable
N Paralled, no Output Enable
M Multiplexed Output Enable

OC - Output Code
B Binary
G Gray code

OD - Output Device
TT TTL (74AC573)
RS RS Differential (SP 490)

VOLT - Voltage
05 5VDC Power Supply

TEMP - Temperature Range
S Standard (0 - 70°C)

BASE
A Combination Synchro flange/face mount base
B Blind hollow shaft with external tether

EXIT - Cable Exit
S Side exit cable
T Top exit cable

CAB - Cable length, inches
39 Standard (1M)
XX 02" - 99"

CONN - Conector
P Pigtail
Q DA-15P
R DE-15P
S DE-9P
T DA-26P

SHAFT
03M 3 mm
04M 4 mm
05M 5 mm ("S" shaft only)
02E 1/8 inch
04E 1/4 inch ("S" shaft only)

SPEC - Special features
N No Special Features

SPECIAL CAPABILITIES

For special situations, we can optimize catalog encoders to provide higher frequency response, greater accuracy, wider temperature range, reduced torque, non-standard line counts, or other modified parameters. In addition, we regularly design and manufacture custom encoders for user-specific requirements. These range from high-volume, low-cost, limited-performance commercial applications to encoders for military, aerospace and similar high-performance, high-reliability conditions. We would welcome the opportunity to help you with your encoder needs.

WARRANTY

Gurley Precision Instruments offers a limited warranty against defects in material and workmanship for a period of one year from the date of shipment.



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