

GURLEY SERIES 9480H ANGLE ENCODER

MOTION TYPE:

ROTARY

USAGE GRADE:

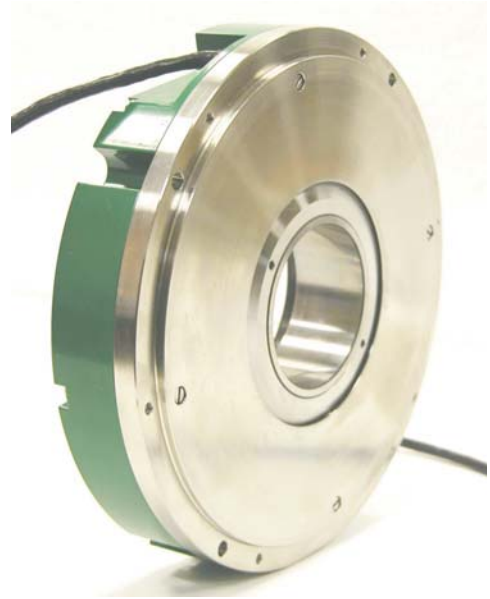
INDUSTRIAL METROLOGY

OUTPUT:

INCREMENTAL

MAX RESOLUTION:

**0.00005°
(0.18 ARCSEC)**



VERY HIGH RESOLUTION - INDUSTRIAL RUGGEDNESS

The Series 9480H is a robust metrology-grade encoder that is equally well-suited for industrial applications. It incorporates four reading heads to eliminate many common sources of encoder errors, while its stainless steel construction greatly enhances resistance to shock and vibration.

It is designed for very precise positioning of rotary tables on machine tools, coordinate measuring machines, dividing apparatus, antennas, test equipment and similar devices.

The 9480H incorporates an internal ASIC (application-specific integrated circuit) to generate quadrature square waves up to 100 times the line count on the disc. Thus, the resolution (after 4X quadrature evaluation by the user) can be as fine as 0.18 arcsec (0.00005°, or 7,200,000 counts per revolution).

9480H: ± 2.5 arcseconds accuracy

**ISO
9001
CERTIFIED**

Gurley Precision Instruments
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ingenuity[®]@work

SPECIFICATIONS

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Input Power	+5 VDC +/- 5%, 150 mA max		
Available line counts	18000		
Output waveforms	Quadrature square waves		
Data	1/4-cycle wide, gated with high states of A and B		
Index	Active low pulse indicates out-of-tolerance encoder operation		
Fault detection signal	Active low pulse indicates out-of-tolerance encoder operation		
For all models:			
<u>Interpolation</u>	<u>Deg. Of Res. (arcsec)</u>	<u>Max. Output Frequency, mHz</u>	<u>RPM</u>
100X	0.00005° (0.18)	2.70	80
50X	0.0001° (0.36)	2.70	180
32X	0.00015° (0.56)	2.70	280
25X	0.0002° (0.72)	1.35	180
16X	0.0003° (1.125)	1.60	330
10X	0.0005° (1.80)	1.00	330
8X	0.0006° (2.25)	0.80	330
5X	0.001° (3.60)	0.50	330
4X	0.0012° (4.50)	0.64	530
2X	0.0025° (9.0)	0.32	530
1X	0.005° (18.0)	0.16	530
Output device	EIA/RS-422 differential line drivers (TTL compatible) on all channels		
Accuracy at 20° C	+/- 2.5 arcsec		
Maximum output frequency	3 MHz (with 50X interpolation)		
Maximum weight, kg [lb]	4.9[10.9]		
Starting torque at 20°C Nm [in-oz]	0.5 [75]		
Moment of inertia g-cm ² [in-oz-s ²]	1500 [0.21]		
Protection level	IP64		
Operating temperature	0°C to 50°C [32°F to 122°F]		
Maximum mech. speed	1000 RPM		
Vibration	50-200 Hz; 100ms ²		
Shock	10 ms; 30°ms ²		

USING THE 9480H

In order to have a system that does not miss any counts during the 4X quadrature evaluation, user's counter or input circuit must be able to detect quadrature edges as close as 50 nanoseconds, which corresponds to a 20 MHz count rate.

WATCHDOG CIRCUIT

A fault-detection circuit constantly monitors the encoder's internal signals . If they deviate beyond prescribed limits, an active-low signal is generated.

Fault conditions detectable by this circuit include:

- LED light source failure or aging
- Defective photo-detectors
- Contamination of the code disc or other optical components
- Localized code disc defects such as chips or cracks

9480H

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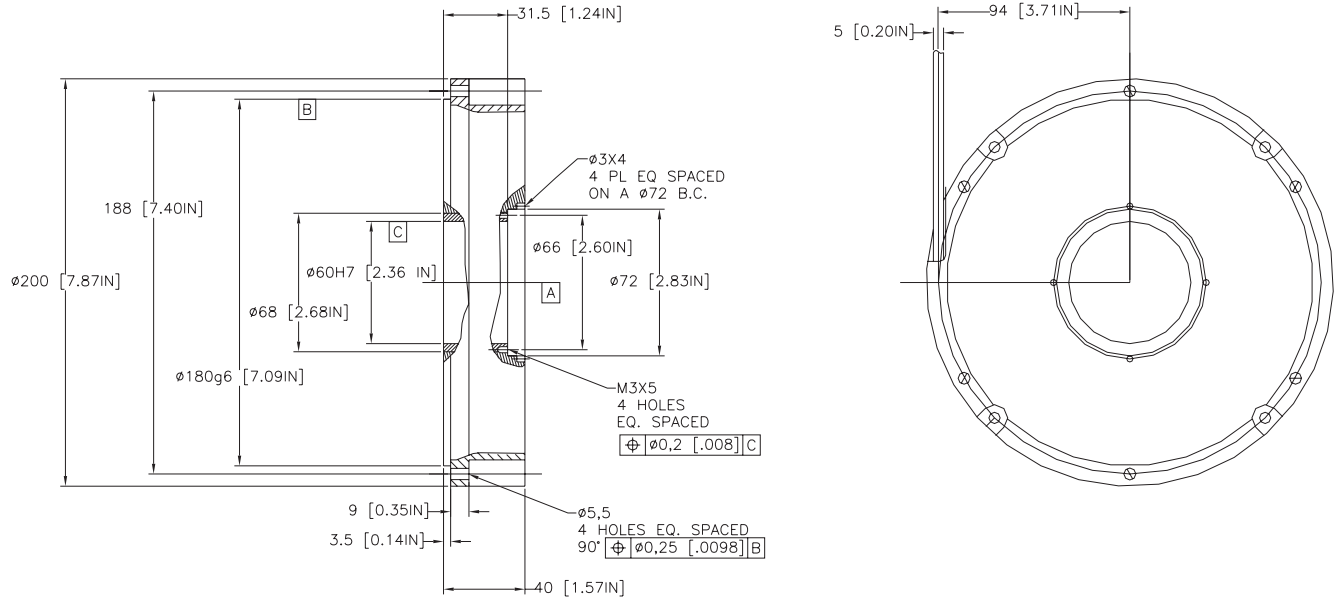
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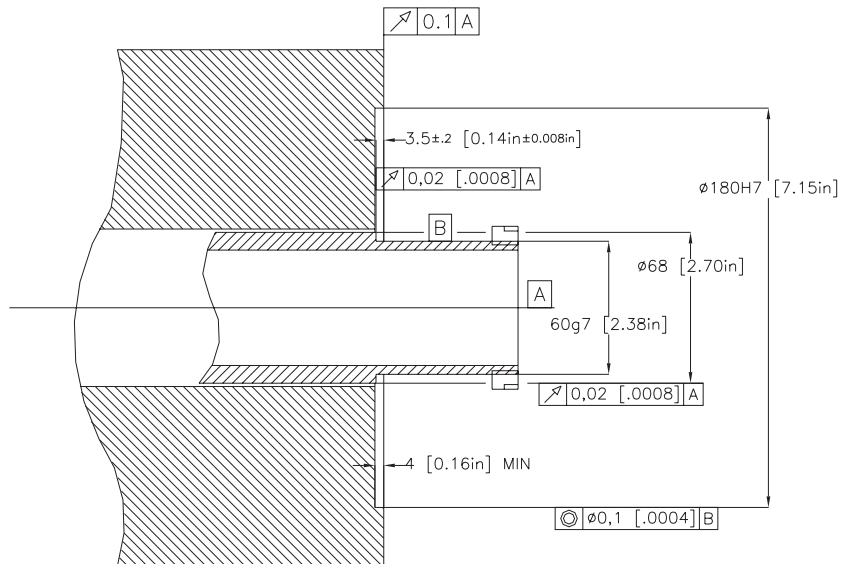
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Model 9480H



User's Mounting Dimensions



ALL DIMENSIONS IN mm [in]

ORDERING INFORMATION

MODEL **SHAFT** **LINES** **IND** **VOLT** **OUT** **INTERP.** **BASE** **CABLE** **EXIT** **CONN** **SHAFT** **SPEC**

Q
5
L

A

S

MODEL

9480 ± 2.5 ARCS ACCURACY
(CALL FACTORY FOR LOWER VALUES)

SHAFT

H HOLLOW SHAFT

LINE COUNT

18000

INDEX

Q Quarter cycle

VOLTAGE

5 +5 volts dc

OUTPUT FORMAT

L RS-422 differential line driver

INTERPOLATION FACTOR

1X, 2X, 4X, 8X, 10X, 16X, 25X, 32X, 50X, 64X OR 100X (WRITE AS **1C**)

BASE

A Synchro/face mount

CABLE LENGTH

XX INCHES
40 STANDARD

EXIT

S Side

CONNECTOR

P PIGTAILS

Q DA - 15P

S DE-9P (FLT and /FLT not available)

SHAFT

60M HOLLOW-SHAFT

SPECIAL CODE TO DEFINE NON-STANDARD FEATURES

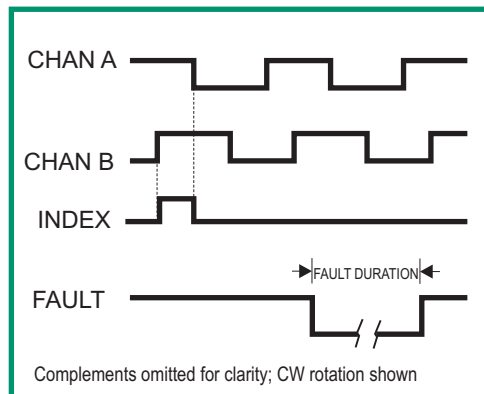
N NO SPECIAL FEATURE

OPTIONS

M01 MATING CONNECTOR FOR DA-15P

M06 MATING CONNECTOR FOR DE-9P

OUTPUT SIGNALS



ELECTRICAL CONNECTIONS

CONN. CODE	P	Q	S
CONN. TYPE	NONE	DA-15P	DE-9P
FUNCTION	COLOR	PIN #	PIN #
A	Yellow	8	4
/A	Brown	7	8
B	Green	5	3
/B	Orange	4	7
IND	Blue	2	2
/IND	White	1	6
+V	Red	10	5
COMMON	Black	13	9
CASE	Drain	9	1
FAULT	Violet	12	N/A
/FAULT	Gray	11	N/A
MATING CONN.	-	M01	M06

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 characteristics. 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.

