

THS25 Industrial Package Magnetic Encoder

TIMKEN

Where You Turn

Specification Overview

Mechanical

- Shaft bore: 0.250 in. to 1.125 in. and 6mm to 28mm; diameters under 1.125 in. are supplied with insulating sleeves
- Allowable misalignment: 0.005 in. T.I.R. on mating shaft, 0.75 in. from shaft end
- Bore run out: -0.0000 in. / +0.0008 in. T.I.R. maximum
- Starting torque at 25°C: 1 in-oz (max)-IP50; 4 in-oz (max)-IP66-seal related
- Shaft material: 304 stainless steel
- Bearing housing: polymer
- Design bearing life: 6.3×10^{10} revs
- Maximum RPM: 6,000 RPM standard; intermittent to 8,000; 4,000 RPM for IP66 seal
- Moment of inertia: 4.8×10^{-1} oz-in-sec²
- Weight: 8.7 oz. (248g)

Electrical*

- Output format: two channels in quadrature with gated index
- Cycles per shaft turn: 100 to 2560 (see nomenclature chart on back)
- Supply voltage: 5-28 VDC
- Current requirements: 65mA + output load (80mA total max.)
- Output device: open collector or line driver
- Protection level: over voltage, reverse voltage and output short circuit
- Frequency response: 200 kHz
- Output terminations: military 6,7, or 10-pin; 5 or 8 pin M12 (12 mm); 10 pin bayonet; or shielded/jacketed cable

Environmental

- Enclosure rating: IP50 standard / IP66 optional
- Operating temperature: -20° to 105° C†
- Storage temperature: -25° to 125° C
- Shock: 100gs for 11 msec duration
- Vibration: 5 to 2000 Hz @ 30gs IEC 60068-2-6
- Humidity: 98% RH without condensation

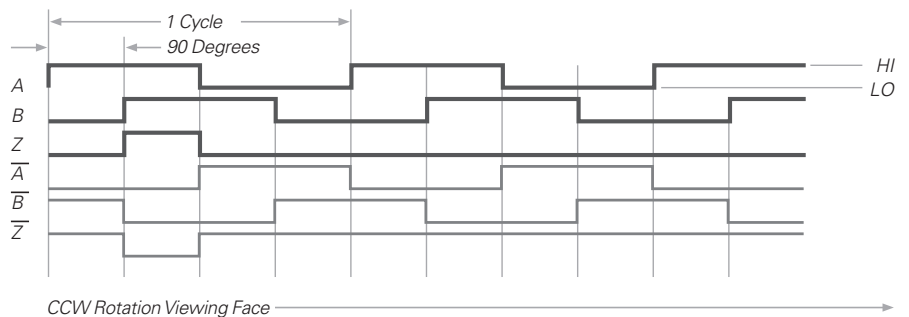
*Consult Timken for other electrical options.

†Not available at all voltages or configurations. Contact your Timken representative.



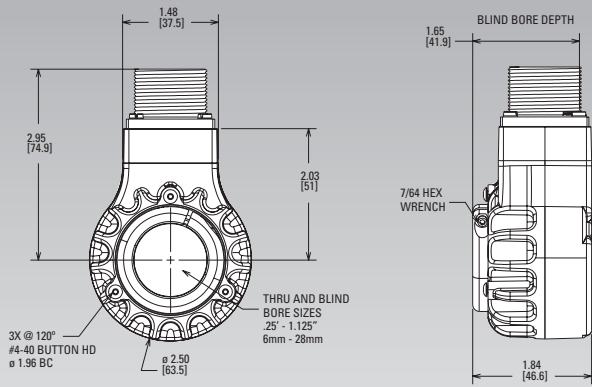
The rugged THS25 magnetic encoder delivers reliable performance at an economical price.

Output Waveform

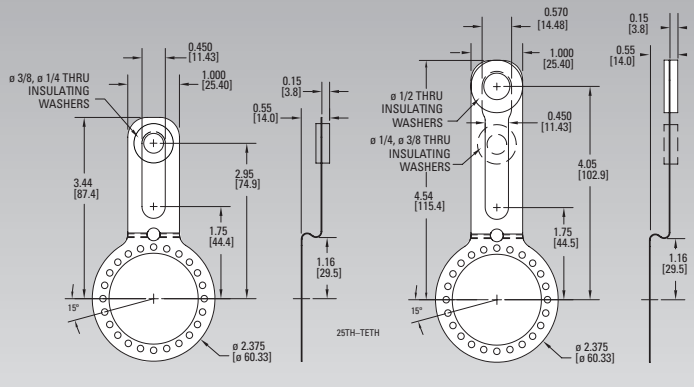


The THS25 high-resolution, magnetic hollow-shaft incremental encoder offers reliable performance at an economical price. Its patented magnetic technology, available in a range of resolutions, provides increased performance over standard optical encoders in high shock and vibration environments. The design handles shaft size ranges normally found in 2 to 3.5 inch hollow-shaft designs. Both inch and metric shafts from 0.25 inch (6mm) to 1.125 inch (28 mm) are accommodated by using

insulating inserts for smaller diameter shafts. EMI circuitry provides protection from high-frequency electrical noise. The patented magnetic circuit design eliminates interference from background magnetic fields. The 2-inch deep, low-profile design is well suited for a wide range of applications, including feedback and vector control, robotics, web processing and printing. The mechanical design comes standard in an IP50 package in a rugged polymer housing, with IP66 as an available option.



THS25 Assembly

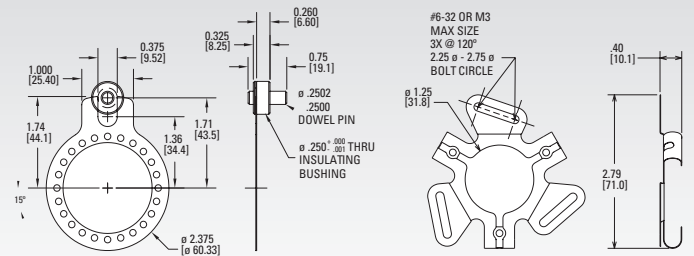


3-in. Tether Arm

4-in. Tether Arm

Wiring Table

Function	Gland Cable Wire Color	5-pin M12	8-pin M12	10-pin MS	7-pin MS OC	7-pin MS LD	6-pin MS	10-pin Bayonet
Com	Black	3	7	F	F	F	A,F	F
+VDC	White	1	2	D	D	D	B	D
A	Brown	4	1	A	A	A	D	A
A'	Yellow	—	3	H	C	—	—	H
B	Red	2	4	B	B	B	E	B
B'	Green	—	5	I	E	—	—	J
Z	Orange	5	6	C	—	C	C	C
Z'	Blue	—	8	J	—	—	—	K
Case	—	—	—	G	G	G	—	G
Shield	Bare	—	—	—	—	—	—	—



Block and Pin

3-Point Flex Mount

Nomenclature

The part numbering for the Timken THS25 Magnetic Encoder provides the information you need to select the best encoder for your needs. Use the chart below to determine the proper part number for your application.

THS25 - _ _ _ _ _

MODEL	RESOLUTION (lines)		MOUNTING	BORE		SEAL	CHANNEL	ELECTRICAL	CONNECTIONS	SPECIAL
THS25	100	600	1 - 3 point	41 - 0.25 in.	10 - 10mm	1 - through shaft IP50	1 - quadrature	1 - open collector	0 - gland w/24 in. cable	custom features
	125	640	flex mount	31 - 0.3125 in.	11 - 11mm	2 - through shaft IP66	2 - quadrature w/index	2 - line driver	1 - 6 pin MS style	examples: - high temperature - certification
	128	800	2 - 4.5 in. C-face	37 - 0.375 in.	12 - 12mm	3 - blind shaft IP50	3 - dual quadrature		2 - 7 pin MS style	
	160	960	tether arm	50 - 0.500 in.	14 - 14mm	4 - blind shaft IP66	4 - dual quadrature w/index		3 - 10 pin MS style	
	200	1000	3 - 8.5 in. C-face	62 - 0.625 in.	15 - 15mm				4 - 5 pin M12	
	240	1024	tether arm	75 - 0.75 in.	19 - 19mm				5 - 8 pin M12	
	250	1200	4 - block & pin	87 - 0.875 in.	20 - 20mm				6 - 10 pin bayonet	
	256	1280		90 - 1.00 in.	24 - 24mm					
	300	1600		91 - 1.125 in.	25 - 25mm					
	320	1920		6 - 6mm	28 - 28mm					
	400	2000		8 - 8mm						
	480	2048								
	500	2400								
	512	2560								

Features and Benefits

- High resolution magnetic technology – shock and vibration resistant
- Compact package accommodates range of shaft sizes – single design addresses range of requirements
- IP50 standard / IP66 optional – high resistance to dirt and debris
- Inserts accommodate range of shaft sizes – electrically isolate shaft
- Industry standard quadrature output – drop-in replacement for current applications
- Ruggedly designed bearing spindle – long operational life

Wherever shafts, gears and wheels turn, Timken provides customers with advanced friction management solutions. These solutions include sensor technologies that help improve performance, extend equipment life and provide precise control in automotive, off-highway and industrial applications. With a large product offering including sensor-equipped bearings, condition monitoring and position sensors, Timken continues to meet motion control needs globally.

Please contact a Timken representative via email at motioncontrol@timken.com for more information.

TIMKEN

Where You Turn

Bearings • Steel • Precision Components • Lubrication • Seals • Remanufacture and Repair • Industrial Services

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Printed in U.S.A.
.5M 03-01-09 Order No. 10111