

## Model THS35 Incremental High Resolution Magnetic Encoder

### THS35 SPECIFICATIONS

#### MECHANICAL

Shaft Bore: 1.000", 0.875", 0.750", 0.625", 0.500" Diameters under 0.875 are supplied with insulating sleeves

Allowable Misalignment: 0.005" T.I.R. on mating shaft 0.75" from shaft end

Bore Runout: 0.001" T.I.R. maximum

Starting Torque at 25°C: Through shaft version (TS) = 7 in-oz (max); Blind shaft version (BS) = 4 in-oz

Bearings: 52100 SAE High carbon steel

Shaft Material: 316 stainless steel

Bearing Housing: Die cast aluminum

Cover: Die cast aluminum with powder coat finish

Bearing Life:  $7.5 \times 10^9$  revs

Maximum RPM: 10,000 RPM (see Frequency Response below)

Moment of Inertia: 0.038 oz-in-sec<sup>2</sup>

Weight: 23.0 oz

#### ELECTRICAL

Output Format: Two channels in quadrature with gated index

Cycles per Shaft Turn: 64 to 2048 (see table A)

Supply Voltage: 5-24 VDC

Current Requirements: 45 mA

Output Device: TC4469, ET7272, ET7273

Protection Level: Over voltage, reverse voltage and output short circuit

Frequency Response: 250 kHz

Output Terminations: Military 10-pin MS3102R18-1P or shielded/jacketed cable

Note: Consult Timken for other electrical options

#### ENVIRONMENTAL

Enclosure rating: To be tested for NEMA 4 & 13

Temperature: Operating temperature 0° to 105° C up to 14 VDC, 0° to 85° C above 14 VDC; storage temperature -25° to 125° C

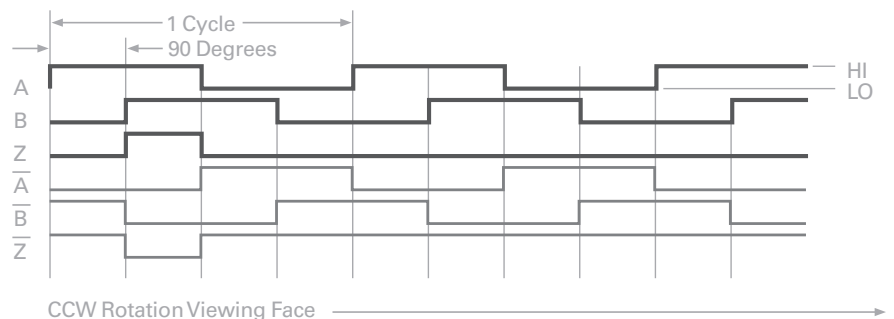
Shock: 100 g's for 6 msec duration

Vibration: 55 to 2000 Hz @ 30 g's IEC 60068-2-6

Humidity: 98% RH without condensation

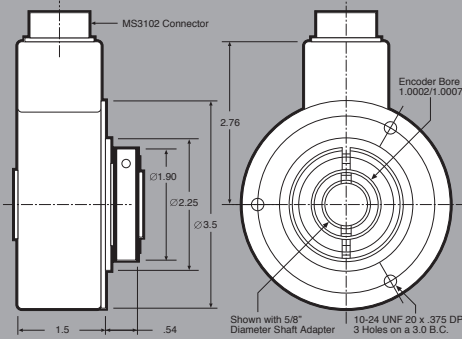


FIGURE 1 Output Waveform

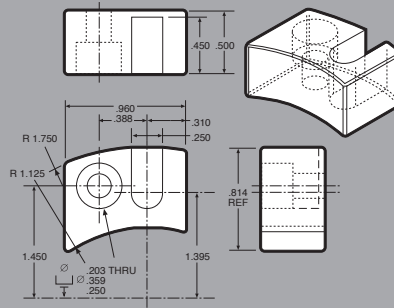


The THS35 high-resolution, magnetic hollow-shaft encoder offers robust performance at an economical price. The patented magnetic technology provides an increased level of performance in high shock and vibration applications compared to standard optical encoders. The hollow-shaft encoder accommodates up to 4096 edges per revolution. The design incorporates du-

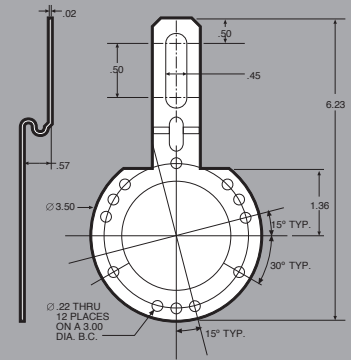
al ball bearings and shaft seals for a NEMA 4, 13 and IP65 rating. The EMI shielded electronics and patented circuit design for the magnetic sensor protect it from errant magnetic fields. The rugged performance makes it ideal for a wide range of tough applications, including: feedback and vector control, robotics, Web processing and printing.



MS CONNECTOR TERMINATION



R1 TETHER BLOCK AND PIN



R2 TETHER ARM

Pin	A	B	C	D	E	F	G	H	I	J	
Function	A	B	Z	+V	Temp Out	Gnd	CG	$\bar{A}$	$\bar{B}$	$\bar{Z}$	
Color	yel	blu	org	red	-	blk	grn	w-yel	w-blu	w-org	

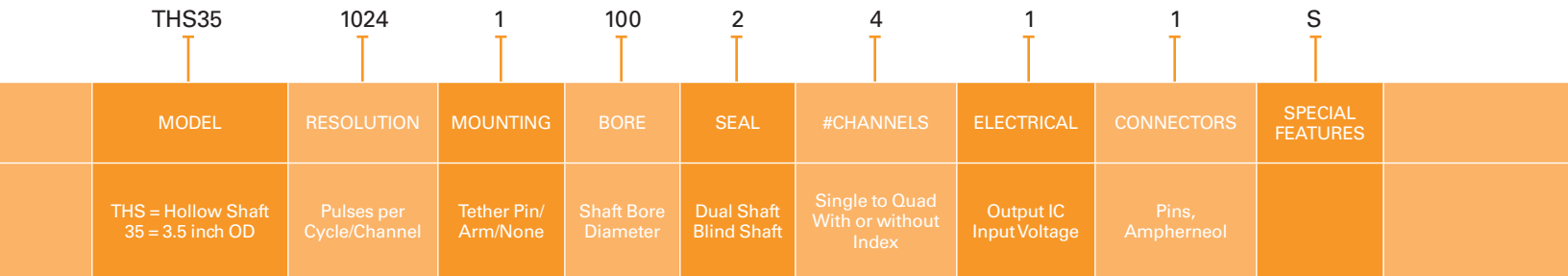
Above Table is for Connector MS3102

**THS35 ORDERING OPTIONS**

For assistance, call 800-223-1954.

Use this diagram, working left to right to construct your model number.

Example: THS35-1024-1-100-2-4-1-1-S



**TABLE A THS35 DISC RESOLUTIONS**

| 64 | 128 | 256 | 512 | 1024 | 2048 |

Every possible effort has been made to ensure the data in this sell sheet is correct, Timken does not assume responsibility for any errors.

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## Model THS25 Incremental High Resolution Magnetic Encoder

### THS25 SPECIFICATIONS

#### MECHANICAL

Shaft Bore: 0.750", 0.625", 0.500"  
Diameters under 0.625" are supplied with insulating sleeves

Allowable Misalignment: 0.005" T.I.R. on mating shaft 0.75" from shaft end

Bore Runout: 0.001" T.I.R. maximum

Starting Torque at 25°C: Through shaft version (TS) = 7 in-oz (max); Blind shaft version (BS) = 4 in-oz

Bearings: 52100 bearing steel

Shaft Material: 316 stainless steel

Bearing Housing: Die cast aluminum

Cover: Die cast aluminum with powder coat finish

Bearing Life:  $1.5 \times 10^9$  revs

Maximum RPM: 10,000 RPM  
(see Frequency Response below)

Moment of Inertia:  $4.0 \times 10^{-4}$  oz-in-sec<sup>2</sup>

Weight: 13.0 oz.

#### ELECTRICAL

Output Format: Two channels in quadrature with gated index

Cycles per Shaft Turn: 64 to 2048 (see table A)

Supply Voltage: 5-24 VDC

Current Requirements: 45 mA

Output Device: TC4469, ET7272, ET7273

Protection Level: Over voltage, reverse voltage and output short circuit

Frequency Response: 250 kHz

Output Terminations: Military 10-pin MS3112E12-10P or shielded/jacketed cable

Note: Consult Timken for other electrical options

#### ENVIRONMENTAL

Enclosure Rating: To be tested for NEMA 4 & 13

Temperature: Operating temperature 0° to 105° C up to 14 VDC, 0° to 85° C above 14 VDC; storage temperature -25° to 125° C

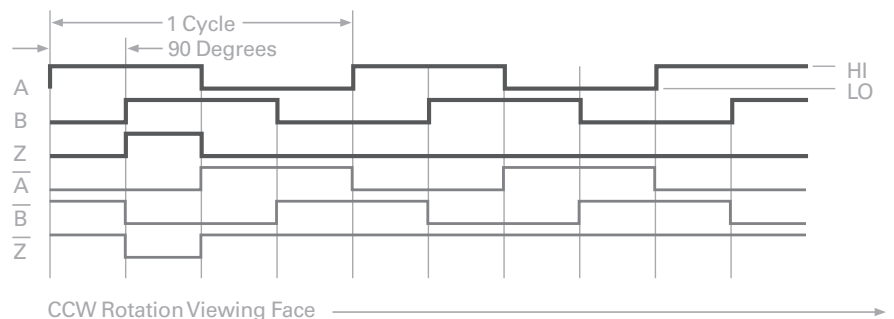
Shock: 100 g's for 6 msec duration

Vibration: 55 to 2000 Hz @ 30 g's IEC 60068-2-6

Humidity: 98% RH without condensation

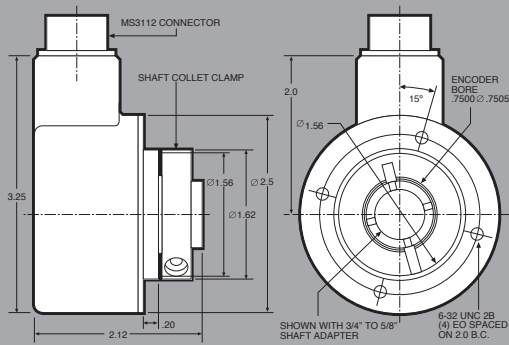


FIGURE 1 Output Waveform

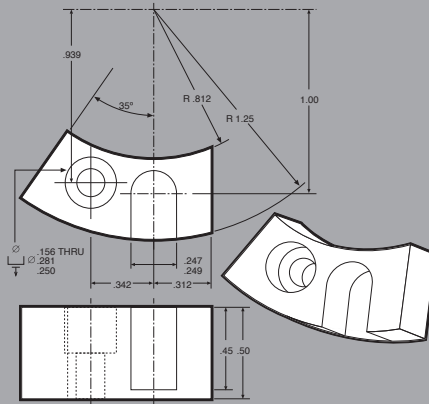


The THS25 high-resolution, magnetic hollow-shaft encoder offers robust performance at an economical price. The patented magnetic technology provides an increased level of performance in high shock and vibration applications compared to standard optical encoders. The hollow-shaft encoder accommodates up to 2048 cycles per channel. The design incorporates dual ball bear-

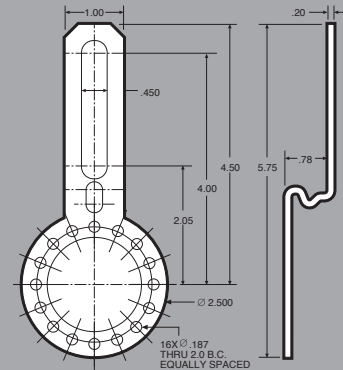
ings and shaft seals for a NEMA 4, 13 and IP65 rating. The EMI shielded electronics and patented circuit design for the magnetic sensor protect it from errant magnetic fields. The two-inch deep, low-profile design is ideal for a wide range of applications, including: feedback and vector control, robotics, Web processing and printing.



THRU SHAFT VERSION



R1 TETHER BLOCK AND PIN



R2 TETHER ARM

Pin	A	B	C	D	E	F	G	H	K	J	
Function	A	B	Z	+V	Temp Out	Gnd	CG	$\bar{A}$	$\bar{B}$	$\bar{Z}$	
Color	yel	blu	org	red	-	blk	grn	w-yel	w-blu	w-org	

Above Table is for Connector MS3112

### THS25 ORDERING OPTIONS

For assistance, call 800-223-1954.

Use this diagram, working left to right to construct your model number.

Example: THS25-1024-1-075-1-2-2-1-S

	THS25	1024	1	075	1	2	2	1	S	
	MODEL	RESOLUTION	MOUNTING	BORE	SEAL	#CHANNELS	ELECTRICAL	CONNECTORS	SPECIAL FEATURES	
	THS = Hollow Shaft 35 = 3.5 inch OD	Pulses per Cycle/Channel	Tether Pin/ Arm/None	Shaft Bore Diameter	Dual Shaft Blind Shaft	Single to Quad With or without Index	Output IC Input Voltage	Pins, Amperneol		

### TABLE A THS2 5 DISC RESOLUTIONS

| 64 | 128 | 256 | 512 | 1024 | 2048 |

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