

TIMKEN

M15 MODULAR MAGNETIC ENCODER

Timken® magnetic encoder technology offers clear operational and cost benefits over other commonly used technologies. Our superior sensing products provide reliable speed and position data even in harsh operating environments.



Timken® M15 high-resolution magnetic encoder technology offers a higher reliability at a comparable cost to optical encoders.

The M15 Modular Magnetic Encoder, like all Timken encoders, relies on the interaction between a sensor and magnetic target. This approach doesn't require a clear line of target-to-sensor sight like optical encoders.

Durability

As a result, Timken encoders operate reliably even in environments filled with dirt, dust, oil, water or other contaminants. A patented differential magnetic sensor circuit design also protects them from interfering magnetic fields.

A larger sensor gap allows the M15 encoder to sustain shock loads and vibration that would damage more fragile optical-style encoders. With its wider gap, the M15 encoder also tolerates more shaft-end play and run-out and installs quickly and easily.

Timken Design

The Timken design combines a direction-sensing Hall Effect encoder with an integrated index pulse and a high-accuracy, resolution-multiplying circuit. The encoder produces and processes the Hall Effect signals to create high-resolution quadrature output signals that provide zero-speed and direction sensing.

Customized Solutions

Customers interested in a customized solution can rely on Timken application engineers to provide expertise and experience. They can help customers tailor the electronic aspects and physical configuration of the encoder to enhance both function and performance for end users.

The Attraction of Magnetic Encoders

- Highly resistant to liquid or solid particulate in gap between sensor and target
- Non-contacting yet compact design resists damage from shock or vibration
- Features Polymer-bonded multi-pole magnets

Use M 2.5 x 8 mm long or #2-56 with captive washers

.50
(13)

1.81
(46)

1.61
(41)

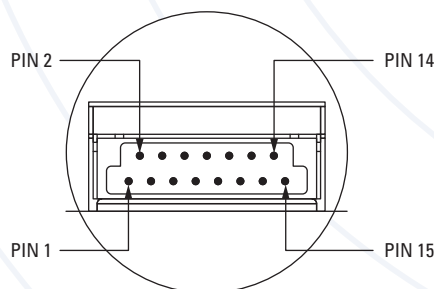
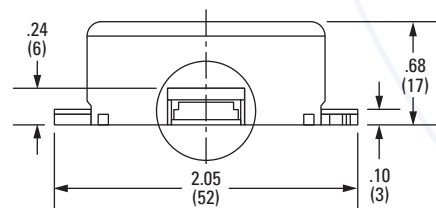
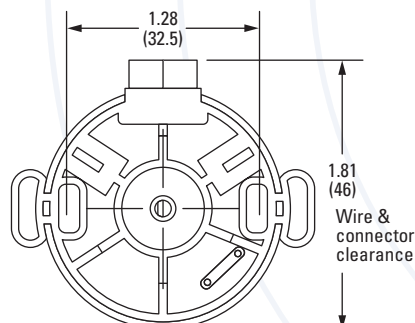


Diagram illustrating the angular positions of the four main wind directions:

- 120° e
- 180° e
- 240° e
- 360° e

The part numbering for the Timken Modular Magnetic Encoder provides the information to select the best encoder for your needs. Use the chart below to determine the proper part number for your order.

M15- -

MODEL	RESOLUTION lines/ch		COMMUTATION	INDEX	HUB	ELECTRICAL	TERMINATION	COVER
M15	100	500	0 = none	0 = none	1 = 1/8	1 = open collector	1 = 15 pin connector	0 = none
	125	512	4 = 4 pole	1 = yes	2 = 3/16	2 = line driver VCC1	15.5 in. (44.5 cm) Mating	1 = cover
	128	640	6 = 6 pole		3 = 5 mm		Cable: Part Number:	2 = cover with
	160	800	8 = 8 pole		4 = 6 mm		TKR CBL-018-15-1-A	center hole
	200	1000	12 = 12 pole		5 = 1/4		36 in. (91.5 cm) Mating	
	250	1024			6 = 5/16		Cable: Part Number	
	256	1280			7 = 8 mm		TKR CBL-036-15-2-A	
	320	2000			8 = 3/8			
	400	2048			9 = 10 mm			

- Stepper motor positioning and anti-stall feedback
- DC brush-type motor positioning
- Brushless DC (BLDC) motor control using the commutation options
- Servo motor control using the commutation options

- Encoder wheel hub material:
Steel with flash nickel plating
- Encoder wheel magnet material:
Nitrile-bonded ferrite

- Encoder wheel method of attachment: Set screw (3mm) aligned with index pulse (if applicable)
- Maximum RPM: 10,000 RPM
- Housing: High-temperature glass-filled nylon
- Mounting screws: M2.5 or #2-56
- Air gap: Set by e-z gauge
- Weight: 28 grams (1.0 oz.)

- Output: Two channels in quadrature with gated index and optional commutation
- Commutation: 4/6/8/12 poles standard (other options available)
- Supply voltage: 5 VDC $\pm 10\%$

- Output format: Line driver (26C31) or open collector
- Current requirements: 39 mA plus commutation halls and output load (26C31)
- Frequency response: 200 kHz (800 kHz data rate)
- Output terminations: 15-pin

- Enclosure rating: NEMA 1/IP40 for models with cover with no center hole
- Operating temperature: -40° to 125° C (-40° – 255° F) open collector, -40° to 85° C (-40 to 185° F) for line driver
- Storage temperature: -55° to 150° C (-67° – 302° F)
- Humidity: 98% relative humidity without condensation

TIMKEN

Stronger. **Commitment.** Stronger. **Value.** Stronger. **Worldwide.** Stronger. **Together.** | Stronger. **By Design.**

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