

TIMKEN

M15A MODULAR MAGNETIC ENCODERS



A Superior Sensing Solution

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.

A Superior Sensing Solution from Timken



M15A Absolute Magnetic Encoder

Timken® M15A high-resolution absolute position magnetic encoder technology can offer a higher reliability at a comparable cost to optical encoders. The M15A Modular Magnetic Encoder, like all Timken encoders, relies on the interaction between a Timken high-resolution sensor chip and a multipolar magnetic target. The M15A offers real-time true absolute position and incremental quadrature signals for demanding applications. True absolute position is available at power on, and continuously during operation through a number of industry standard interfaces.

In addition to true absolute position, the M15A produces real time A B incremental quadrature signals and a once per turn reference pulse. The M15A can also be configured to produce real-time UVW commutation signals that are very precise and electrically configurable for a wide range of pole counts. The M15A offers the benefit of electrically timing your motor without moving the magnet wheel or the encoder body.

Performance: The M15A uses robust magnetic sensors to produce both absolute position and incremental signals. The M15A has industry leading responsiveness with extremely low latency.

Applications: Servo motors, stepper motors, smart motors, factory automation, robotics, telescope, antenna, material handling, semiconductor fabrication, mobile platforms, CNC, general industrial automation.

Features:

- Magnetic technology is considered immune to contamination and can be ideal for harsh environments
- Industry standard mounting
- Power on absolute position in a compact modular encoder
- Up to 14 bit (16,384) binary resolution 10,000 decimal
- Absolute resolutions available: 16384, 8192, 4096, 2048, 1024, 512, 256, 128, 12800, 6400, 3200, 1600; 10000, 5000, 2500, 1250, 8000, 4000, 2000, 1000, 800, 500, 250, 200, 100; 7200, 3600, 1800, 900
- Absolute position output via SSI / SPI, BiSS-C (unidirectional) and RS422
- User configurable 0 position for absolute position
- Produces UVW commutation signals
- One button zero for perfect timing of UVW and Index
- Closed cap or hole in cover to match shaft diameter selected interface and programmer

Specification Overview

Mechanical:

- Outside diameter: 1.61" (40.9mm) with or without cap for 1.28" (32.5mm) mounting pattern; 2.05" (52.1mm) when 1.81" (46mm) bolting pattern is used
- Height: 0.68" (17.3mm) with cap
- Hub bores: 1/8" to 1/2", 4mm to 14mm
- Hub material: 400 series stainless steel
- Target magnet material: nitrile-bonded ferrite
- Maximum RPM: 10,000 RPM
- Housing: high temperature glass filled polymer
- Mounting screws with washers: M2.5 or 2-56
- Aligned with shaft using supplied centering gauge
- Air gap set by e-z gauge
- Weight: 1.0 oz. (28 grams)

Electrical

- Incremental output: Two channels in quadrature with gated index and optional commutation
- Incremental latency: 8uS
- Absolute position output: SSI / SPI, BiSS (unidirectional) RS422
- Serial data available at 8 MHz clock rate maximum, 2.5MHz BiSS-C
- Absolute data LSB latency: 10 uS (incremental + 2 uS)
- Commutation: 2/4/6/8/10/12/14/16/18/20/22/24 pole UVW
- Commutation: UVW latency: 8 uS (incremental + 0 uS)
- Frequency: 1.2 MHz A, B Quad (2.4 MHz data rate)
- Output format: line driver (LM26C31), open collector or 5V push pull output
- Frequency: 8 MHz absolute serial data clock - SPI
- Supply voltage: 5 VDC at 57 – 73 mA
- Output terminations: 15-pin

Environmental

- Enclosure rating: NEMA 1 / IP40
- Operating temperature -40° to 105° C open collector, -40° to 105° C for line driver
- Storage temperature -55° to 150° C
- Humidity: 98% RH without condensation

*For dimensional data go to www.timkenencoders.com

TIMKEN

The Timken team applies their know-how to improve the reliability and performance of machinery in diverse markets worldwide. The company designs, makes and markets bearings, gear drives, automated lubrication systems, belts, brakes, clutches, chain, couplings, linear motion products and related power transmission rebuild and repair services.

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Stronger. By Design.