

EM1024

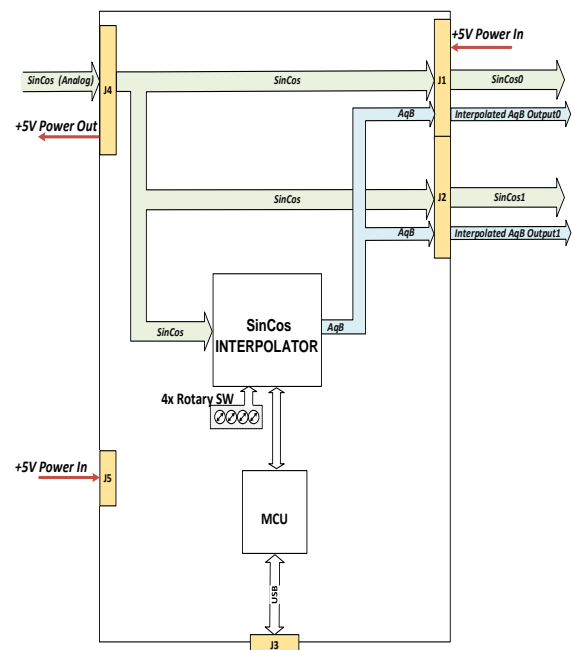


Encoder Multiplier and Splitter

The EM1024 is a single channel analog SinCos encoder multiplier and splitter designed for high precision motion control applications including inspection and metrology systems. From the original incoming SinCos encoder signal, two pairs of output encoder signals (four total) are generated - two buffered SinCos identical to the original, and two AqB with up to 1024 counts per SinCos period.

Product Highlights

- > Compact DIN Rail mount form factor with D-Sub connectors for easy integration
- > Jumper-selectable power supply input source (from controller/drive or external supply) for easy integration
- > Rotary Selector selectable AqB Multiplication Factor up to 1024 counts per SinCos encoder cycle for high resolution position event generation and position capture
- > Max SinCos Encoder Input Frequency of 700KHz (Absolute maximum)
- > Max AqB Encoder Output Frequency of 25 million cts/sec.
- > Sophisticated filtering, gain/phase/offset, and hysteresis calibration features for optimal performance
- > Common Use Cases
 - > Generating high-speed position-based signals (PEG outputs) or capture high-speed position-based events (MARK inputs) at high resolutions with SinCos encoders
 - > An external device in a motion control system i.e. camera triggering board requires digitized encoder signals from a SinCos encoder
 - > A motion controller or drive that does not support SinCos encoder inputs must interface with SinCos encoders



Specifications

Input Encoder Interface

Type: Incremental analog Sin-Cos, 1Vptp, differential
Electrical Interface: Input impedance 120K Ω
Input voltage range: 1.25Vptp
Encoder supply output: 5V \pm 5%, 250 mA
Encoder maximum current consumption [mA]: 250mA
Connector: Sub-D, 26 pin high density, female
Max. Frequency: 700KHz

Output Encoder (Controller/drive) Interface

Number of interfaces: 2
J1 supports Encoder 5V supply input
Connector: Sub-D, 26 pins high density, male

SinCos

Type: Incremental analog Sin-Cos, 1Vptp, differential
Max. Output Frequency: equal to input frequency

AqB

Type: Differential RS422, compatible with 120 Ω (20mA maximum output)
Max. Output Frequency: 25 million cts/sec.

Power Supply

5V power can be supplied by one of the following (selected by jumper JP1):

1. The controller/drive connected to the EM1024 via J1.
2. An external power supply via J5.

Maximum current consumption [mA]: 250mA
Connector: 3 pins, MOLEX PN 436500315

Interpolation

24 interpolation factors are available, up to a maximum of 1024.

AqB Output Frequency Limiter

A programmable AqB output frequency limiter guarantees a minimum separation time between AB edges.

Hysteresis

Hysteresis is available in the AqB signal path to reduce output dithering (instability) at standstill at the expense of position error on direction reversal.

Filtering

A configurable filter is provided in the signal path to reduce noise and jitter in the AqB output. Light, medium, and heavy filtering modes are available.

Auto Gain/Phase/Offset Calibration

Auto calibration is used at initial calibration to automatically determine initial offset, gain, and phase compensation

Auto Index Calibration

Auto Z calibration enables the user to establish a repeatable location of the z-index pulse.

Auto Adaptation

Auto adaptation maintains optimal offset, channel balance, and phase compensation values for the sin and cos channels during operation to ensure maximum interpolator accuracy under all operating conditions.

Standards and Certifications

- > RoHS
- > CE

Mounting

DIN- rail

Weight

243 grams

Dimensions

134 x 75.4 x 31 mm

Environment

Operating: 0°C to +40°C

Storage and transportation: -25°C to +60°C

Ordering Options

Part Number: EM1024

Package contents: EM1024, power supply mating connector
MOLEX 43645-0300