M5312

**1, 2, 3 or 4 Axis ISA-Bus
Quadrature Encoder Interface**
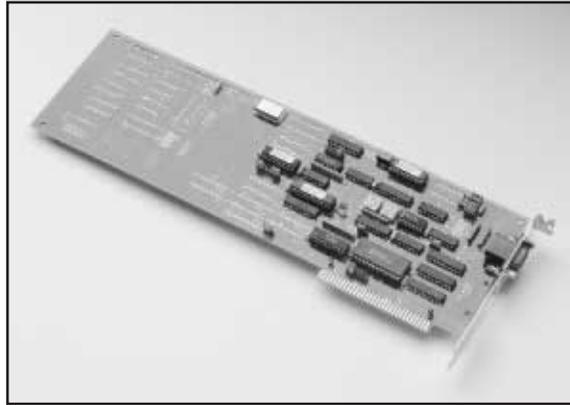
Functional Description

The M5312 Quadrature Encoder Interface is ISA-bus compatible. It provides inputs and decoding for up to four incremental quadrature encoders. For each encoder, phase 0, phase 90, and index pulse inputs are provided. Inputs may be single-ended or differential. Power (+5V) and ground connections are provided for encoder use if needed.

Inputs are conditioned by a four-stage digital filter. Five jumper select-able sample clock frequencies, rang-ing up to 10MHz, are available for fil-ter use. Noise immunity may be opti-mized by selecting the lowest fre-quency that is compatible with the highest input rate expected.

The maximum input rate in quadrature decode mode is approximately 333kHz. The maximum input rate in count mode is approximately 1.25MHz.

The conditioned inputs are applied to a 24-bit counter with a pro-grammable mode. The counter may be used for quadrature decoding, pulse- and direction-input counting, or as a pulse input up/down counter. The counters may be cascaded in various configu-rations of 24-bit groupings. (For example, one 24-bit counter and one 72-bit counter, or one 96-bit counter.) They are independent, but may be initialized simultaneously by issuing commands to a single port. When an index pulse occurs, the count may be latched or a new count may be loaded. Count output is available in binary or binary-coded decimal format.

The M5312 may be enabled to generate interrupts when an index pulse occurs and during an overflow/underflow or compare-value match. All interrupts are controlled by a Programmable Interrupt Controller (PIC), which allows masking of any combination of interrupts. The M5312 products include C and QuickBASIC drivers for DOS and a DLL for programming under Windows.

FEATURES

- Accepts inputs from incremental or quadrature encoders
- Digitally filtered inputs with selectable sampling rates
- 333kHz maximum quadrature input pulse rate
- 24-bit presettable counters
- 1, 2, 3, or 4 axis versions available
- Windows 3.X/95/98/NT/2000 32-bit driver support
- Software driver compatible with C and QuickBASIC
- Windows DLL

APPLICATIONS

- Coordinate measuring machines
- X-Y table monitors
- Robotics
- Machine control

SPECIFICATIONS

ENCODER TYPE: Single-ended or differential
LOGIC LEVELS: TTL- and CMOS-compatible output
CONNECTOR: 1 standard 9-pin D per channel

POWER REQUIREMENTS

(+5V only)

1-axis	1.25A max
2-axis	1.5A max
3-axis	1.75A max
4-axis	2.0A max

DIMENSIONS

13.2in L × 4.25in H × 0.75in D (33.5cm × 10.8cm × 1.9cm).

ORDER	DESCRIPTION
M5312-1	Single Axis Quadrature Encoder Interface
M5312-2	Two Axis Quadrature Encoder Interface
M5312-3	Three Axis Quadrature Encoder Interface
M5312-4	Four Axis Quadrature Encoder Interface
Options	
TESTPOINT	TestPoint Software Package

Block Diagram

J1-J4 PIN ASSIGNMENTS		
PIN #	FUNCTION (SINGLE-ENDED)	FUNCTION (DIFFERENTIAL)
1	GROUND OUT	PHASE A INPUT
2	+5V OUT	+5V OUT
3	GROUND OUT	PHASE B INPUT
4	+5V OUT	+5V OUT
5	GROUND OUT	INDEX INPUT
6	PHASE A INPUT	PHASE A INPUT
7	PHASE B INPUT	PHASE B INPUT
8	GROUND OUT	GROUND OUT
9	INDEX INPUT	INDEX INPUT