

# DIAMOND-MM

## 12-bit Analog I/O PC/104 Module



- 16 12-bit A/D with 100KHz sample rate, programmable input ranges and 512 sample FIFO
- 2 12-bit D/A
- 8 digital inputs and 8 digital outputs
- Counter / timers for A/D control and general use
- -40 to +85°C operation

## DESCRIPTION

Diamond-MM has all the primary features you expect in a high-performance analog I/O board, at a reduced price. The analog input circuit uses a 12-bit A/D converter and can be configured for single-ended or differential mode and unipolar or bipolar mode. It also offers 10 different input ranges, so it can work with a wide variety of input signals. The maximum A/D conversion rate is up to 20,000 per second using interrupts or up to 100,000 per second using DMA.

Two optional analog outputs provide 12-bit resolution over a 0-5V or user-adjustable range with 8mA drive current and 4 $\mu$ s settling time. The D/A can also be used as a digital attenuator for an analog signal fed into one of the reference inputs.

The board contains 8 digital inputs and 8 digital outputs. It also has an on-board 82C54 counter/ timer chip to control the A/D sampling rate and provide general purpose counting functions.

Diamond-MM is available in four versions: With or without analog outputs, and in commercial (0-70°C) or industrial (-40 to +85°C) operating temperature range.

## SPECIFICATIONS

Analog Inputs	
<b>Number of inputs</b>	16 16-bit
<b>Input Modes</b>	Single-ended, Differential
<b>Input Ranges</b>	$\pm 10V$ , $\pm 5V$ , $\pm 2.5V$ , $\pm 1.0V$ , $\pm 0.5V$ , 0-10V, 0-5V, 0-2.5V, 0-1.0V, 0-0.5V, jumper selected
<b>Max Sample Rate</b>	100KHz
<b>Nonlinearity</b>	$\pm 1$ LSB, no missing codes
<b>On-board FIFO</b>	None
<b>Calibration</b>	Manual calibration
<b>Analog Outputs</b>	2, 12-bit resolution
<b>Output Ranges</b>	0-5V
<b>Output Current</b>	$\pm 8$ mA max per channel
<b>Settling Time</b>	4mS max to $\pm 1/2$ LSB
Analog Outputs	
<b>Relative Accuracy</b>	$\pm 1$ LSB
<b>Digital I/O Lines</b>	8 In, 8 Out
<b>DIO Input Voltage</b>	Logic 0: 0.0V min, 0.85V max Logic 1: 2.0V min, 5.0V max
<b>DIO Output Voltage</b>	Logic 0: 0.0V min, 0.33V max Logic 1: 3.8V min, 5.0V max
<b>Counter / Timers</b>	1 - 32-bit; 1 - 16-bit
<b>Clock Source</b>	10MHz clock or external signal
<b>Power Supply</b>	+5VDC $\pm 10\%$ @165mA
<b>Operating Temp</b>	0 to 70°C (standard) -40°C to +85°C (XT models)
<b>Weight</b>	3.2oz / 91g

## ORDERING INFORMATION

Part No.	Description
<b>DMM</b>	16 12-bit A/D, 100KHz, 2 12-bit D/A, 8 digital inputs, 8 digital outputs, 0-70°C
<b>DMM-XT</b>	16 12-bit A/D, 100KHz, 2 12-bit D/A, 8 digital inputs, 8 digital outputs, -40°C to 85°C

## FOR MORE INFORMATION

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