

DIAMOND-MM-32X-AT / DIAMOND-MM-16-AT

HIGH ACCURACY ANALOG I/O WITH AUTOCALIBRATION

Diamond-MM-32X-AT

- 32 16-bit A/D with 250KHz sample rate, programmable input ranges and 1024 sample FIFO
- Automatic autocalibration for high accuracy across operating temperature range without user intervention
- 4 12-bit D/A
- 24 high-current digital I/O with programmable direction
- Counter/timers for A/D control and general use



Diamond-MM-16-AT

- 16 16-bit A/D with 100KHz sample rate, programmable input ranges and a 512 sample FIFO
- Autocalibration of A/D and D/A for high accuracy
- 4 12-bit D/A
- 8 digital inputs and 8 digital outputs
- Counter / timers for A/D control and general use



The Diamond-MM-32X-AT and Diamond-MM-16-AT high accuracy 16-bit analog I/O PC/104 modules provide two alternatives to meet the varying analog input needs of PC/104 expandable systems. DMM-32X-AT has 32 analog inputs with a 250 KHz sample rate and 1024 sample FIFO, while the DMM-16-AT offers 16 analog inputs with a 100 KHz sample rate and 512 sample FIFO. Both boards provide four 12-bit analog outputs with programmable output ranges, 2 counter/timers, and an operating temperature range from -40 to +85°C. Both boards support both interrupt and DMA A/D transfers. The DMM-32X-AT offers 24 digital I/O lines with programmable direction, while the DMM-16-AT provides 8 input lines and 8 output lines.

While both boards make use of autocalibration technology, the DMM-32X-AT provides Diamond Systems' patented Automatic Autocalibration technology to calibrate its A/D and D/A circuits automatically whenever required, without user intervention. This means you get analog I/O performance with the maximum possible accuracy over the full operating temperature range, without doing anything at all. DMM-32X-AT is the first and only board to offer this advanced capability.

Both boards are supported by Diamond Systems' Universal Driver programming software for Linux, Windows 98 / 2000 / XP / CE, DOS, QNX, and VxWorks.

SPECIFICATIONS

Feature	DMM-32X-AT	DMM-16-AT
Analog Inputs	32 16-bit	16 16-bit
Input Modes	Single-ended, Differential	Single-ended, Differential
Input Ranges	$\pm 10V$, $\pm 5V$, $\pm 2.5V$, $\pm 1.25V$, $\pm 0.625V$, 0-10V, 0-5V, 1.25V, 0-.625V	$\pm 10V$, $\pm 5V$, $\pm 2.5V$, $\pm 1.25V$, $\pm 0.625V$, 0-10V, 0-5V, 1.25V, 0-.625V
Max Sample Rate	250KHz	100KHz
Nonlinearity	$\pm 3LSB$, no missing codes	$\pm 3LSB$, no missing codes
On-board FIFO	1024, prog. threshold	512, prog. threshold
Calibration	Automatic autocalibration	Software initiated autocalibration
Analog Outputs	4, 12-bit resolution	4, 12-bit resolution
Output Ranges	$\pm 5V$, $\pm 10V$, 0-5V, 0-10V	$\pm 5V$, 0-5V
Output Current	$\pm 5mA$ max per channel	$\pm 5mA$ max per channel
Settling Time	6 μ S max to 0.01%	6 μ S max to 0.01%
Relative Accuracy	± 1 LSB	± 1 LSB
Digital I/O Lines	24 programmable direction	8 In, 8 Out
DIO Input Voltage	Logic 0: 0.0V min, 0.8V max Logic 1: 2.0V min, 5.0V max	Logic 0: 0.0V min, 0.8V max Logic 1: 2.0V min, 5.0V max
DIO Output Voltage	Logic 0: 0.0V min, 0.33V max Logic 1: 2.4V min, 5.0V max	Logic 0: 0.0V min, 0.33V max Logic 1: 3.8V min, 5.0V max
Counter / Timers	1 - 32-bit; 1 - 16-bit	1 - 32-bit; 1 - 16-bit
Clock Source	10MHz clock or external signal	10MHz clock or external signal
Power Supply	+5VDC $\pm 10\%$ @410mA	+5VDC $\pm 10\%$ @350mA
Operating Temp	-40°C to +85°C	-40°C to +85°C
Weight	3.4oz / 96g	3.3oz / 93g

ORDERING INFORMATION

Part No.	Description
DMM-32X-AT	32 16-bit A/D, 250KHz, 4 12-bit D/A, 24 DIO, auto-autocalibration
DMM-16-AT	16 16-bit A/D, 100KHz, 4 12-bit D/A, 8 digital inputs, 8 digital outputs, autocalibration
DMM-16-NA-AT	16 16-bit A/D, 100KHz, No D/A, 8 digital inputs, 8 digital outputs, autocalibration