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Find the *Diamond Systems DMM-32-AT* at our website: *Click HERE*

DIAMOND-MM-32-AT

16-BIT A/D, 32 CHANNELS, 200KHZ, AUTOCALIBRATION

SPECIFICATIONS

ANALOG INPUTS	
Number. of inputs	32 single-ended, 16 differential, or 16 SE + 8 DI; user selectable
A/D resolution	16 bits (1/65,536 of full scale)
Bipolar ranges	±10V, ±5V, ±2.5V, ±1.25V, ±0.625V
Unipolar ranges	0-10V, 0-5V, 0-2.5V, 0-1.25V
Input bias current	100pA max
Nonlinearity	±3LSB, no missing codes
Conversion rate	200,000 samples/sec. max
Conversion trigger	software trigger, internal pacer clock, or external TTL signal
AD FIFO	512 samples, programmable thresholds
Calibration	Automatic; values stored in EEPROM
ANALOG OUTPUTS	
Number of outputs	4
D/A resolution	12 bits (1/4096 of full scale)
Output ranges	±5V, ±10V, 0-5V, 0-10V, programmable
Output current	±5mA max per channel
Settling time	6µS max to 0.01%
Relative accuracy	±1 LSB
Nonlinearity	±1 LSB, monotonic
Reset	All channels reset to 0V
Calibration	Automatic; values stored in EEPROM
DIGITAL I/O	
No. of I/O	24 programmable I/O
Input voltage	Logic 0: 0.0V min, 0.8V max Logic 1: 2.0V MIN, 5.0V max
Input current	±1µA max
Output voltage	Logic 0: 0.0V min, 0.33V max Logic 1: 2.4V min, 5.0V max
Output current	Logic 0: 64mA max per line Logic 1: -15mA max per line
COUNTER/TIMERS	
A/D Pacer clock	32-bits (2 82C54 counters cascaded)
Clock source	10MHz on-board clock or external signal
General purpose	16-bits (1 82C54 counter)
GENERAL	
Power supply	+5VDC ±10% @ 200mA typ
Operating temp.	-40 to +85°C
Weight	3.4oz / 96g

NOTE:
The analog input range table shown on page 20 with the Diamond-MM-16-AT product also applies to Diamond-MM-32-AT.

The Diamond-MM-32-AT is the undisputed world leader in PC/104 analog I/O. No other A/D board can match its combination of feature density, configuration flexibility, and advanced technology.

The 32 analog input channels reduce overall system size and cost for high channel count applications. A unique variable input configuration feature lets you configure the inputs for 32 single-ended, 16 differential, or a combination of 16 single-ended and 8 differential.

Nine analog input ranges, from a wide ±10V down to 0-1.25V, cover the greatest number of input requirements. A 512-sample FIFO with programmable threshold lets you reach maximum A/D speed without missing samples. With external triggering you can synchronize the A/D converter to external signals and events.

The four analog outputs can be configured in four different fixed output ranges as well as a programmable range anywhere from 1V to 10V with 1mV accuracy. Each output can drive up to 5mA.

The advanced autocalibration circuit calibrates both the analog inputs and outputs under software control. It provides individual precise adjustments for each analog input range to maximize accuracy across all configurations. Calibration takes just seconds and can be performed as often as desired.

The board contains an integrated 82C55-type digital I/O circuit with 3 8-bit ports. Each port features configurable direction. The digital I/O lines have user-configurable pull-up / pull-down resistors and latching / handshaking capability. Each output line can sink up to 64mA in logic 0 state or drive up to 15mA in logic 1 state.

A 32-bit counter/timer is provided for programming the A/D sample rate. A second 16-bit counter/ timer can be programmed to generate waveforms, count pulses and events, or generate interrupts at programmed rates. The counter clock source can be selected from the on-board 10MHz oscillator or an external signal.



AT AUTOCALIBRATION TECHNOLOGY

- 32 analog inputs, 16-bit A/D
- 200KHz maximum sampling rate
- Multi-channel scan sampling with interrupts and FIFO support
- Programmable input ranges
- Unipolar/bipolar and single-ended/ differential inputs
- 4 analog outputs, 12-bit D/A
- Multi-range autocalibration of A/D and D/A
- 24 digital I/O with latching capability and enhanced output current
- 512-sample FIFO with programmable threshold
- Counter/timers for A/D control and general use
- +5V power supply
- -40 to +85°C operation
- FREE Universal Driver software included

ORDERING GUIDE

DMM-32-AT 32 16-bit A/D, 200KHz, 4 12 bit D/A

For cables and accessories, see pages 46-47.

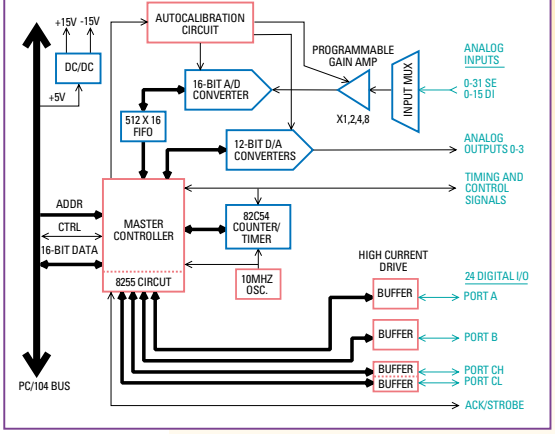
DIGITAL I/O HEADER

A7	1	2	A6
A5	3	4	A4
A3	5	6	A2
A1	7	8	A0
B7	9	10	B6
B5	11	12	B4
B3	13	14	B2
B1	15	16	B0
C7	17	18	C6
C5	19	20	C4
C3	21	22	C2
C1	23	24	C0
LATCH	25	26	ACK
NC	27	28	NC
NC	29	30	NC
NC	31	32	NC
+5V	33	34	DGND

ANALOG I/O HEADER

ANALOG GND	1	2	ANALOG GND
VIN 0/0+	3	4	VIN 16/0-
VIN 1/1+	5	6	VIN 17/1-
VIN 2/2+	7	8	VIN 18/2-
VIN 3/3+	9	10	VIN 19/3-
VIN 4/4+	11	12	VIN 20/4-
VIN 5/5+	13	14	VIN 21/5-
VIN 6/6+	15	16	VIN 22/6-
VIN 7/7+	17	18	VIN 23/7-
VIN 8/8+	19	20	VIN 24/8-
VIN 9/9+	21	22	VIN 25/9-
VIN 10/10+	23	24	VIN 26/10-
VIN 11/11+	25	26	VIN 27/11-
VIN 12/12+	27	28	VIN 28/12-
VIN 13/13+	29	30	VIN 29/13-
VIN 14/14+	31	32	VIN 30/14-
VIN 15/15+	33	34	VIN 31/15-
VOUT 3	35	36	VOUT 2
VOUT 1	37	38	VOUT 0
VREF OUT	39	40	AGND
CLOCK OUT	41	42	CTR 2 OUT/DOUT 2
S/H OUT/DOUT 1	43	44	CTR 0 OUT/DOUT 0
EXTCLK/DIN 3	45	46	EXGATE/DIN 2
GATE 0/DIN1	47	48	CLK 0/DIN 0
+5V	49	50	DGND

DIAMOND-MM-32 BLOCK DIAGRAM



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