SPECIFICATIONS

CIO-DAS08-AOH
CIO-DAS08-AOM
CIO-DAS08-AOL

Analog Input & Digital I/O

MEASUREMENT COMPUTING™

Revision 5, October, 2000

Power consumption

+5V:	670 mA typical, 840 mA max

Analog Input Section

A/D converter type	574AJ
Resolution	12 bits
Number of channels	8 differential (configurable as quasi-differential via installation of SIP resistor)
Input Ranges	
CIO-DAS08-AOH	±10V, ±5V, ±1V, ±0.5V , ±0.1V, ±0.05V, ±0.01V, ±0.005V, 0 to 10V, 0 to 1V, 0 to 0.1V, 0 to 0.01V software-selectable
CIO-DAS08-AOL	±10V, ±5V, ±2.5V, ±1.25V, ±0.625V, 0 to 10V, 0 to 5V, 0 to 2.5V, 0 to 1.25V software selectable
CIO-DAS08-AOM	±10V, ±5V, ±0.5V, ±0.05V, ±0.01V, 0 to 10V, 0 to 1V, 0 to 0.1V, 0 to 0.01V software selectable
Polarity	Unipolar/Bipolar, software selectable
A/D pacing	Internal counter or external source (Interrupt Input, jumper selectable, rising edge) or software polled
A/D Trigger sources	External hardware/software (Digital In 1)
Data transfer	Interrupt or software-polled
DMA	None
A/D conversion time	25 µs
Throughput	20 KHz, PC dependent
Accuracy	±0.01% of reading ±1 LSB
±0.05% of full scale	
Differential Linearity error	±1 LSB
Integral Linearity error	±0.5 LSB
No missing codes guaranteed	12 bits
Gain drift (A/D specs)	±25 ppm/°C
Zero drift (A/D specs)	±10 µV/°C
Common Mode Range	±10V
CMRR	72 dB
Input leakage current (@25 Deg C)	100 nA
Input impedance	10 Meg Ohms min
Absolute maximum input voltage	±35V

Analog Output:

D/A converter type	AD7237 dual DAC
Resolution	12 bits
Number of channels	2
Output Ranges	±10V, ±5V, ±2.5V, ±1.67V, 0 to 10V, 0 to 5V, 0 to 2.5V, 0 to 1.67V Each channel independently switch selectable
Offset error	±1 LSB max (adjustable to 0 with potentiometer)
Gain error	±1 LSB max (adjustable to 0 with potentiometer)
Differential nonlinearity	±0.9 LSB max
Integral nonlinearity	±1 LSB max
Monotonicity	Guaranteed monotonic to 12 bits over temperature

D/A Gain drift	±3 ppm/°C max
D/A Bipolar offset drift	±30 ppm/°C max
D/A Unipolar offset drift	±50 ppm/°C max
D/A pacing	Software paced
D/A trigger modes	Software
Data transfer	Programmed I/O
Settling time (D/A converter)	
(full scale step to ±0.5 LSB)	8 µs max
Slew Rate (OP07)	0.3V/µs
Current Drive	±5 mA
Output short-circuit duration	indefinite
Output coupling	DC
Output impedance	0.1 Ohms max
Miscellaneous	Double buffered output latches

Update DACs individually or simultaneously (jumper selectable)

Digital Input / Output

Digital Type (main connector)	
Output:	74LS273
Input:	74LS244
Configuration	4 fixed output bits, 3 fixed input bits
Number of channels	4 out, 3 in
Output High	2.7 volts min @ –0.4 mA
Output Low	0.4 volts max @ 8 mA
Input High	2.0 volts min, 7 volts absolute max
Input Low	0.8 volts max, –0.5 volts absolute min
Output power-up / reset state	low
Digital Type (Digital I/O connector)	82C55
Configuration	2 banks of 8, 2 banks of 4, programmable by bank as input or output
Number of channels	24 I/O
Output High	3.0 volts min @ –2.5mA
Output Low	0.4 volts max @ 2.5mA
Input High	2.0 volts min, 5.5 volts absolute max
Input Low	0.8 volts max, –0.5 volts absolute min
Power-up / reset state	Input mode (high impedance)
Interrupts	2 through 7, jumper-selectable
Interrupt enable	Programmable
Interrupt sources	External (Interrupt In), rising edge

Counter section

Counter type	82C54
Configuration	3 down-counters, 16 bits each

Counter 0 - independent, user configurable

Source:	user connector (Counter 0 In)
Gate:	tied high through 10k (enabled)
Output:	user connector (Counter 0 Out)

Counter 1 - independent, user configurable

Source:	user connector (Counter 1 In)
Gate:	user connector (Gate 1)
Output:	user connector (Counter 1 Out)

Counter 2 - independent, user configurable

Source:	1MHz (from 10MHz Xtal via divide-by-ten) or PC SysClk (via divide by 2 circuit) selectable by jumper
Gate:	user connector (Gate 2)
Output:	user connector (Counter 2 Out)

Clock input frequency	10 Mhz max
High pulse width (clock input)	30 ns min
Low pulse width (clock input)	50 ns min
Gate width high	50 ns min
Gate width low	50 ns min
Input low voltage	0.8V max
Input high voltage	2.0V min
Output low voltage	0.4V max
Output high voltage	3.0V min

Environmental

Operating temperature range	0 to 50°C
Storage temperature range	–20 to 70°C
Humidity	0 to 95% non-condensing

Measurement Computing Corporation
16 Commerce Boulevard,
Middleboro, Massachusetts 02346

(508) 946-5100

Fax: (508) 946-9500

E-mail: info@measurementcomputing.com
www.measurementcomputing.com