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CIO-EXP16

Specifications



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Specifications

Typical for 25 °C unless otherwise specified.

Specifications in *italic* text are guaranteed by design.

Analog input

Table 1. Analog input specifications

Parameter	Specification
Number of channels	16 differential (1 bank)
Input range	±10 V
Gain	Switch selectable by bank, additive values of X1, X10, X100, X200 and X500
Calibration	Two offset potentiometers per bank (16 channels) and one Cold Junction Compensation adjustment potentiometer per board.
Gain error	Gain = 1 0.002% typical, 0.02% max Gain = 10 0.005% typical, 0.05% max Gain = 100 0.01% typical, 0.1% max Gain = 200 0.02% typical, 0.2% max Gain = 500 0.05% typical, 0.5% max
Non-linearity	Gain = 1 0.0005% typical, 0.005% Gain = 10 0.001% typical, 0.01% max Gain = 100 0.002% typical, 0.01% max Gain = 200 0.003% typical, 0.01% max Gain = 500 0.005% typical, 0.02% max
Temperature coefficient	Gain = 1 ± 20 ppm / °C Gain = 10 ± 20 ppm / °C Gain = 100 ± 40 ppm / °C Gain = 200 ± 60 ppm / °C Gain = 500 ± 100 ppm / °C Offset ± 15 µV / °C
Common mode range	±10 V
CMRR @ 60 Hz	90 dB
Input filter	7 Hz, selectable through solder bridge (C pad)
Open thermocouple detect	-50 mV at positive input when thermocouple is open, selectable through solder bridge (V pad)
Input ground reference	100k ohms to ground, selectable through solder bridge (G pad)
Input leakage current	*V and G pads open: 2 nA typical, 6 nA max*
Input impedance	▪ *V and G pads open: >100 Meg Ohms min* ▪ *V and G pads shorted 100 k Ohms min*
Absolute maximum input voltage	▪ *Power on: ±35 V* ▪ *Power off: ±20 V*

Cold junction compensation

Table 2. Cold junction compensation specifications

Parameter	Specification
CJC output voltage	24 mV / °C
CJC zero crossing	0 mV at 0 °C

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Analog output

Table 3. Analog output specifications

Parameter	Specification
Number of channels	2 (one from multiplexed inputs, one from CJC circuit)
Output voltage range	±10 V
Configuration	Single – ended
Current drive	*±5 mA*
Output coupling	*DC*
Output impedance	*0.1 Ohms max*

Digital input

Table 4. Analog input specifications

Parameter	Specification
Digital input:	*74LS14*
Configuration	Four bits for selecting multiplexer channel 0 through 15
Number of channels	4 input
Input high	2.0 volts min, 7 volts absolute max
Input low	0.8 volts max, -0.5 volts absolute min

Power consumption

Table 5. Power consumption specifications

Parameter	Specification
+5 V	120 mA typical, 155 mA max

Environmental

Table 6. Environmental specifications

Operating temperature range	*0 to 60 °C*
Storage temperature range	*-40 to 100 °C*
Humidity	*0 to 90% non-condensing*

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Main connector and pin out

Table 7. Connector specifications

Connector type	P1 and P2: 37-pin D type connectors
Compatible cables with connector P1	C37FF-x (connecting to additional CIO-EXP16 boards)
Compatible cables with connector P2	▪ C37FF-x (connecting to a DAS08 board) ▪ C-EXP2DAS16-10 (connecting to a DAS16 board)

Table 8. Connector pin out

Pin	Signal Name	Pin	Signal Name
1	+12V PC Bus	20	-12V PC Bus
2	NC	21	NC
3	NC	22	NC
4	NC	23	NC
5	NC	24	NC
6	NC	25	NC
7	MUX Addr 1	26	NC
8	MUX Addr 2	27	NC
9	MUX Addr 3	28	Power GND
10	MUX Addr 4	29	+5V
11	Output 15	30	Output 7
12	Output 14	31	Output 6
13	Output 13	32	Output 5
14	Output 12	33	Output 4
15	Output 11	34	Output 3
16	Output 10	35	Output 2
17	Output 9	36	Output 1
18	LLGND / Output	37	Output 0
19	NC / LLGND		

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