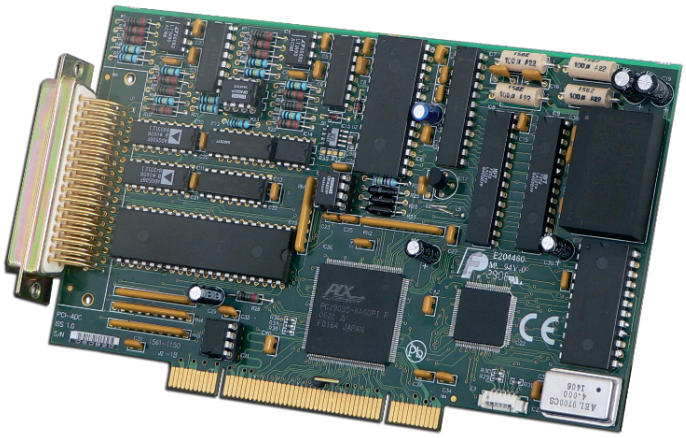
Datasheet: PCI-ADC 44 Channel Multi-Function Card

Blue Chip *Technology*

www.bluechiptechnology.co.uk



Key Features

- 8 differential inputs or 16 single-ended inputs. 12 bit resolution
- 4 x 12 bit analogue outputs
- 24 programmable digital I/O channels at TTL levels
- 3 on board 16 bit Counter Timers (8254 compatible)
- Suitable for monitoring input voltages with a full scale reading as low as ±5mV
- Sample and hold amplifier provides accurate readings at varying input signals
- Analogue voltage and current outputs are bi-polar
- Digital inputs can be either voltage or volt free contacts
- Software configurable
- Auto calibration
- Fully Universal PCI and Plug -and-play compliant (compatible with 3.3V and 5V buses)
- Supplied with demonstration software examples

The PCI-ADC is a PCI-compatible halfcard which provides analogue and digital input/outputs and counter/timers. Eight differential or sixteen single ended analogue inputs are available with 12-bit resolution and programmable gain to allow full scale input ranges of between ± 5mV and ± 5 volts. The maximum sample rate of these is 230 KS/s.

A FIFO input buffer is available such that 1024 analogue samples may be taken before processor intervention is required. Four bipolar analogue outputs are provided to 12 bits resolution. Each may be individually configured as voltage or current outputs with full scale range of ±10 volts or ±20mA.

Options

1 metre cable with IDC and D type connector (P/N 1371 0071)

50 way screw terminal adapter (P/N 1981-0004)

Windows® 98/2000, NT® and XP® drivers

There are 24 TTL-compatible programmable digital input/outputs available from the board and there are also three programmable counter/timers, the outputs of which may be used to generate interrupts, to initiate analogue input conversion, analogue output sample update, or digital I/O. A 4 MHz crystal oscillator is available on board to allow the counter/timers to provide accurate timebases.

Downloaded from Elcodis.com electronic components distributor

Technical Specification

Analogue Inputs	
Number:	16 single ended inputs or 8 differential input
Range:	± 5 Volts maximum operating
Resolution:	12 bits
Gain settings:	1, 10, 100 or 1000, software selectable.
Gain accuracy:	All gains without auto-cal. = ± 0.3 % . All gains with auto-cal. = ± 0.05 %
Input offset accuracy:	Gain = 1 or 10 without auto-cal. = ± 0.1 % Gain = 1 or 10 with auto-cal. = ± 0.05 % Gain = 100 without auto-cal. = ± 0.2 % Gain = 100 with auto-cal. = ± 0.05 % Gain = 1000 without auto-cal. = ± 1.2 % Gain = 1000 with auto-cal. = ± 0.05 %
Max sample rate:	230Ks/s burst, 4.3µs conversion time
Input settling time:	Gain = 1 23 µs all typical to 0.1% Gain = 10 24 µs Gain = 100 100 µs Gain = 1000 1000 µs
Data buffer:	FIFO 16 bits wide x 1024 samples, with channel number identification on each sample

Analogue Outputs	
Number of outputs:	4
Output resolution:	12 bits
Format:	Constant voltage or constant current Individually software selectable.
Output levels:	Voltage mode = ± 10 volts Current mode = ± 20 mA
Drive capability:	Voltage mode = ± 20 mA (FS into 500R min.) Current mode = ± 12 volts (FS into 600R max.)
Accuracy:	Voltage mode = ± 0.15 % Current mode = ± 3.5 %

Interrupts	
Interrupt Sources:	Register selectable to 3 Counter/timer outputs, 2 PIO handshake control lines, ADC busy and FIFO Not Empty/Half full.
Levels Supported:	All PCI interrupts
Address Overhead:	26 I/O addresses in 3 PCI address spaces

Digital Input/Output	
Number of I/O Channels:	24 arranged as 3 x 8 I/O bits
Signal Levels:	5 Volt TTL Logic Levels
Outputs:	Logic Low Level: 0 V (min.) - 0.4 V (max.) @ IOL = 2.5 mA Logic High Level: 3.5 V (min.) - 5 V (max.) @ IOH = -400 mA
Drive Current:	2.5 mA (Logic Low) Vout = 0.4 Volts -400 mA (Logic High) Vout = 3.5 Volts
Input Loading:	±10 mA
Termination resistors:	Resistor packs are fitted to each I/O port to pull the lines to + 5 volts. Optionally they may pull the lines down to 0 volts.

Counter/Timers	
Counter/timers:	3 x 16 Bit. Counter/timers may be cascaded.
On board Oscillator:	Frequency 4 MHz. Stability ± 100ppm 0 - 70°C

Power	
Board Power Requirement:	+3.3 Volts, 0.5 W maximum +5 Volts, 1.2 W maximum

Physical	
Signal Connections:	1 x 50 way male 'D-type' plug
Dimensions:	165 (L) x 100 (H) board only 180 (L) x 122 (H) x 22 (W) including bracket

INVESTOR IN PEOPLE

BS EN ISO 9001:2000
Certificate No FM 33069

Downloaded from Elcodis.com electronic components distributor