

AMPLICON PCI230+



Features

- 500kS/s with 16-bit resolution
- Universal PCI compatible, 3.3V or 5V
- 16 single-ended or 8 differential inputs
- 4096 sample FIFO memory for inputs
- Two analog outputs with 1024 sample FIFO
- Flexible analog and digital triggering
- 24 digital I/O and counter/timers
- Windows 95, 98, NT, 2000, XP, 2003, Vista and Linux support
- Drivers for C/C++, VB/VB.Net, C#, Delphi, VEE and LabVIEW

Description

General

The PCI230+ is a high performance multifunction data acquisition board with 16 single-ended or eight true differential analog inputs, two analog output channels, 24 lines of user configurable digital I/O and three counter/timers.

Architecture

Analog input channels are connected through a multiplexer to the 16-bit A/D converter. Single-ended inputs are referenced to a common ground, whereas differential inputs use two input channels to make a measurement. The software driver allows the gain and bipolar or unipolar operation to be set.

There are two 12-bit analog output channels that can generate unipolar or bipolar voltages, and a 1024 sample FIFO is provided to allow smooth waveform generation.

There are 24 digital I/O lines available from an 82C55 PPI chip which can be configured as for input or output on Port A, Port B and Port C.

Sampling modes

The PCI230+ provides several acquisition modes to suit a variety of applications. These include software controlled single or multiple sampling, and triggered sampling from digital or analog inputs.

Software control - For single channel data acquisition, simply select the desired channel and initialise a sample. When you select multiple channels, the card automatically samples each channel in ascending order. Samples are initially placed in the FIFO and transferred to the PC in a batch when the FIFO reaches a preset level.

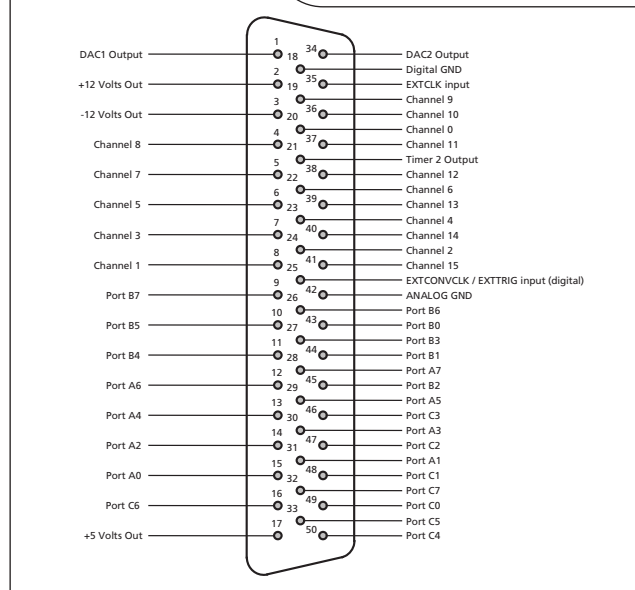
Hardware triggering - The PCI230+ can start acquiring data when an analog or digital trigger is received. This can be any input channel and may set as a level or edge trigger on analog signals, as found on many oscilloscopes.

Software support

The PCI230+ may be used in 32-bit Windows or Linux operating systems. Drivers are available for all popular high-level programming languages. The Amplicon programming library, AMPDIO32, provides example programs with source code which can be modified as required.

DAX software allows non-programmers to set up and control the input channels in an Excel environment.

PCI230+ 50-way connector



AMPLICON PCI230+

Specifications

| Analog input | |
|-----------------------------|---|
| A/D channels | 16 single-ended or 8 differential |
| A/D resolution | 16-bit |
| Sampling speed | 500kS/s (maximum) |
| Multiple channel sampling | Two channels @ 125kS/s/channel 16 channels @ 15.6kS/s/channel |
| Input ranges | Bipolar $\pm 1.25V$, $\pm 2.5V$, $\pm 5.0V$, $\pm 10.0V$ Unipolar 0 to $+2.5V$, 0 to $+5.0V$, 0 to $+10.0V$ |
| Input impedance | 1.0Mohm < 100pF each channel |
| Sampling modes | Software polled, interrupt controlled, external trigger |
| External triggers | Analog level threshold |
| Input FIFO | 4096 samples (user programmable threshold) |
| Input slew rate | 2.5V/ μ s for all gain ranges |
| Reference temp. coefficient | 3ppm/°C |
| Analog output | |
| Output channels | Two 12-bit D/A converters |
| Output FIFO | 1024 samples (for waveform generation) |
| Output range | Bipolar $\pm 10.0V$ Unipolar 0 to 10.0V, one common ground |
| Conversion time | 4 μ s typical |
| Settling time | 1 μ s typical (converter only) |
| Output impedance | <1ohm per channel |
| Output current | 10mA max per channel |
| Short circuit output | Outputs will withstand a short circuit to ground. Max short circuit current 30mA |
| Reference | Derived from ADC on chip reference voltage |
| Overall accuracy | ± 1.5 least significant bits |
| Modes | Software polled and interrupt driven |

| Digital input/output | |
|----------------------|--|
| Digital I/O | One 82C55 chip with 24 TTL compatible lines |
| Digital inputs | Low: -0.3V to +0.8V High: +2.2V to +5.3V |
| Digital outputs | Low: +0.4V max at +2.5mA High: +3.7V min at -2.5mA |
| Counter / Timer | |
| Number of counters | Three 16-bit counter/timers (82C54) |
| Clock source | Internal 10MHz clock with dividers to 1MHz, 100kHz, 10kHz, 1kHz. External up to 10MHz square TTL wave |
| Clock accuracy | Initial tolerance ± 50 ppm |
| Intervals | 2.0 μ s to 10 minutes |
| Counter input | Low: -0.3 to +0.8V High: +2.2 to +5.3V |
| Counter output | Low: +0.3V max. at +2.0mA High: +3.8V min. at -2.0mA |
| General | |
| Connector | 50-way female D-sub |
| PC interface | Universal PCI, 3.3V or 5V |
| Dimensions | 153 x 91mm (length x height) |
| Operating temp. | 0 to +60°C |
| Storage temp. | -20 to +70°C |
| Humidity | 5 to 95% RH, non condensing |
| Power requirements | 3.3V@500mA or 5V@300mA $\pm 12V$ @150mA |
| MTBF | 506 khours |
| Compliance | CE, EMC, EN55022 and EN55024 |

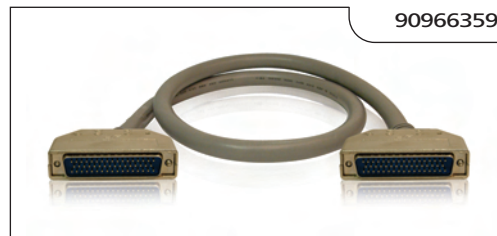
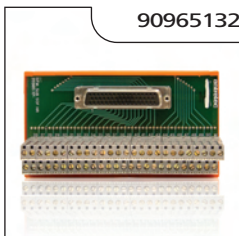
Accessories and Ordering information

Images are for illustration purposes only

96052503 PCI 230+ Multifunction 16-bit PCI board with digital I/O & counter timers

90965132 50 way screw terminal assembly with D connector, DIN rail mounting

90966359 1m 50 way screened extension cable male to male D connector



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