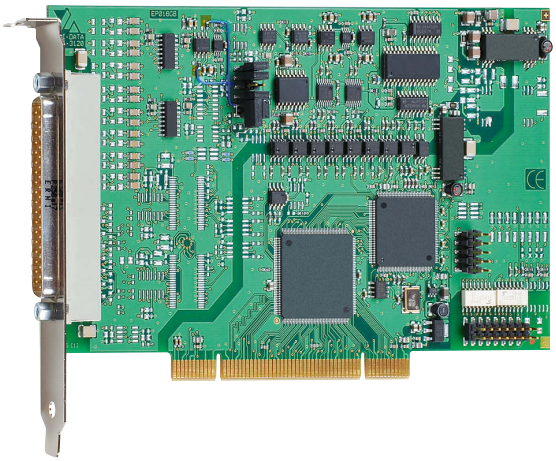
Analog input board, optically isolated, 16/8/4 SE or 8/4 differential inputs, 12-bit



APCI-3001

16/8/4 single-ended or
8/4 differential inputs

12-bit resolution

Optical isolation 500 V

100 kHz throughput

PCI DMA, programmable gain

8 digital I/O, 24 V, optically isolated, timer

Trigger functions

RoHS 2002/95/EC

Also for PCI EXPRESS®
see APCIe-3121

Compatible version for *CompactPCI™*
See CPCI-3001

Windows
64/32-bit drivers

LabVIEW™

LabWindows/CVI™

DIAdem®

DASYLab10
Data Acquisition System Laboratory

Features

Analog inputs

- 16 single-ended / 8 differential inputs or
  8 single-ended / 4 differential inputs or
  4 single-ended inputs
- 12-bit resolution
- Throughput: 100 kHz
- Input voltage: 0-10 V, ±10 V, 0-5 V, ±5 V, 0-2 V, ±2 V, 0-1 V, ±1 V, 0-20 mA (option), freely programmable through software for each channel
- Gain PGA x1, x2, x5, x10 freely programmable through software for each channel
- PCI-DMA for analog data acquisition

Analog acquisition

- Single channel, several channels, several channels through scan list
- Automatic analog acquisition through cyclic timer control
- Acquisition through scan list: up to 16 entries with gain, channel, unipolar/bipolar
- Acquisition triggered through software, timer, external event
- Trigger functions:
  - Software trigger or
  - External trigger: the analog acquisition (single or scan) is started through signal switching from 0 V to 24 V at the digital input 0.
- Interrupt: End of single channel, end of multichannel, end of scan list

Digital

- 4 digital inputs, 24 V, optically isolated
- 4 digital outputs, 24 V, optically isolated

Timer

- 24-bit, can be used as cyclic time counter

Safety features

- Optical isolation 500 V min.
- Creeping distance IEC 61010-1
- Overvoltage protection ± 40 V
- Protection against high-frequency EMI
- Input filters: 159 kHz
- Noise neutralisation of the PC supply

Applications

- Industrial process control
- Industrial measurement and monitoring
- Multichannel data acquisition
- Control of chemical processes
- Factory automation
- Acquisition of sensors
- Laboratory equipment
- Current measurement
- Instrumentation

Software drivers

Standard drivers for:

- Linux
- 32-bit drivers for Windows 11 / 10 / 8 / 7 / Vista / XP / 2000
- Signed 64-bit drivers for Windows 11 / 10 / 8 / 7 / XP
- Real-time use with Linux and Windows on request

Drivers and samples for the following compilers and software packages:

- Visual C++ • Microsoft C
- Borland C++ • Borland C
- Visual Basic • Delphi
- LabVIEW • DASYLab • DIAdem

On request:

Further operating systems, compilers and samples.

Driver download: www.addi-data.com/drivers

Phone: +49 7229 1847-0 info@addi-data.com
Fax: +49 7229 1847-222 www.addi-data.com

ADDI-DATA®
SPIRIT OF EXCELLENCE

Specifications

Analog inputs

Number of inputs:	16 single-ended/8 differential inputs 8 single-ended/4 differential inputs or 4 single-ended inputs
Resolution:	12-bit
Optical isolation:	500 V through opto-couplers from PC to peripheral
Input ranges:	Software-programmable for each channel 0-10 V, ±10 V, 0-5 V, ± 5 V, 0-2 V, ± 2 V, 0-1 V, ± 1 V 0-20 mA optional
Throughput:	100 kHz
Gain:	Software programmable (x1, x2, x5, x10)
Common mode rejection:	DC at 10 Hz, 90 dB minimum
Relative precision (INL):	± 1 LSB (ADC)
Diff. non-linearity (DNL):	± 0.5 LSB (ADC)
Input impedance (PGA):	10^{12} Ω // 10 nF single-ended, 10^{12} Ω // 20 nF differential against GND
Bandwidth (- 3 dB):	Limited to 159 kHz with low-pass filter
Trigger:	Through software, timer, external event (24 V input)
Data transfer:	Data to the PC through FIFO memory, I/O commands, interrupt at EOC (End Of Conversion) and EOS (End of Scan), DMA transfer at EOC
Interrupts:	End of conversion, at timer overrun, End of scan

Timer

Time base timer 2:	50 µs; smallest programmable value: 100 µs

Digital I/O

Number of I/O channels:	4 digital inputs, 4 digital outputs, 24 V
Optical isolation:	500 V through opto-couplers from PC to peripheral
Input range:	0-30 V - Logical "0": 0-5 V - Logical "1": 10-30 V
Input current at 24 V:	3 mA typ.
Output range:	5-30 V
Max. switching current:	10 mA typ.
Output type:	Open Collector

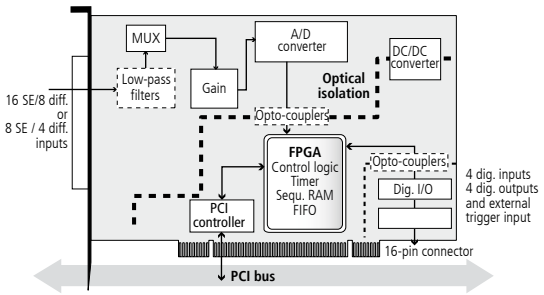
EMC – Electromagnetic compatibility

The product complies with the European EMC directive. The tests were carried out by a certified EMC laboratory in accordance with the norm from the EN 61326 series (IEC 61326). The limit values as set out by the European EMC directive for an industrial environment are complied with. The respective EMC test report is available on request.

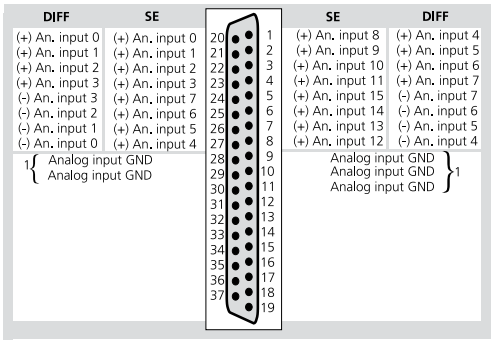
Physical and environmental conditions

Dimensions:	169 x 99 mm
System bus:	PCI 32-bit 3.3 / 5 V acc. to specification 2.1 (PCISiG)
Space required:	1 PCI slot for analog inputs, 1 slot opening for digital I/O
Operating voltage:	+5 V, ±5 % from the PC
Current consumption:	496 mA typ. ± 10 %
Front connector:	37-pin D-Sub male connector
Additional connector:	16-pin male connector for ribbon cable for connecting the digital inputs and outputs
Temperature range:	0 to 60 °C (with forced cooling)

Simplified block diagram

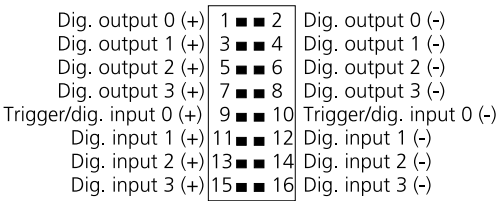


Pin assignment – 37-pin D-Sub male connector

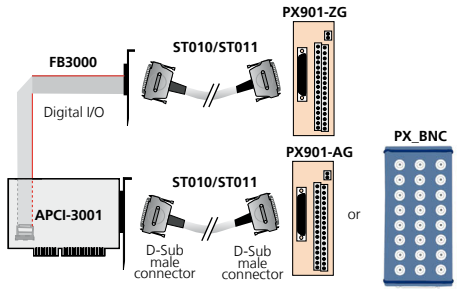


1: The analog inputs have a common ground line

Pin assignment – 16-pin male connector



ADDI-DATA connection



Ordering information

APCI-3001

Analog input board, optically isolated, 16/8/4 SE or 8/4 diff. inputs, 12-bit. Incl. technical description and software drivers.

Versions

APCI-3001-16: 16 SE/8 diff. inputs, 8 dig. I/O
APCI-3001-8: 8 SE/4 diff. inputs, 8 dig. I/O
APCI-3001-4: 4 SE inputs, 8 dig. I/O

Options

Please indicate the number of channels
Option SF: Precision filter for 1 single-ended channel
Option DF: Precision filter for 1 differential channel
Option SC: Current input for 1 single-ended channel 0(4)-20 mA
Option DC: Current input for 1 diff. channel, 0(4)-20 mA

Accessories

PX901-A: Screw terminal panel with transorb diodes, for connecting the analog inputs
PX901-AG: Same as PX901-A with housing for DIN rail
PX_BNC: BNC connection box for connecting the analog I/O
PX901-ZG: Screw terminal panel for connecting the digital I/O, for DIN rail
ST010: Standard round cable, shielded, twisted pairs, 2 m
ST011: Standard round cable, shielded, twisted pairs, 5 m
FB3000: Ribbon cable for digital I/O