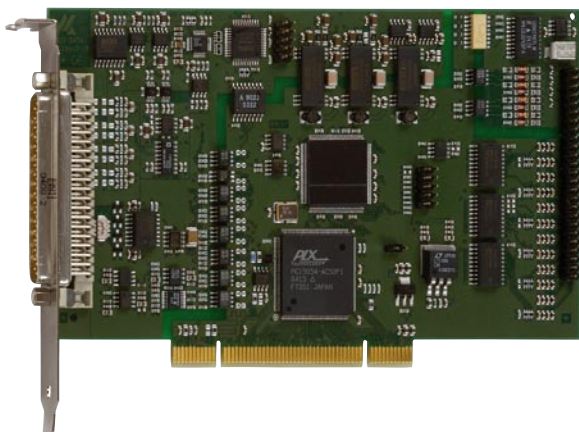


Analog input board, optically isolated, 16/8/4 SE or 8/4/2 diff. inputs, 12-/16-bit



APCI-3010 / APCI-3016

PCI 3.3 V or 5 V

Optical isolation 1000 V

16/8/4 SE or 8/4/2 diff. inputs

12- or 16-bit resolution, 200 kHz

PCI DMA, programmable gain

Trigger functions

Timer/counter/watchdog

8 optically isolated dig. I/O, 24 V, 24 TTL I/O



PCI 32-bit



LabVIEW™



LabWindows/CVI™



Customer-tailored

modifications

designed to suit your needs. Hardware and software, firmware, PLDs, ...

Contact us!

Features

- PCI 3.3 V or 5 V

Analog inputs

- 16/8/4 SE or 8/4/2 diff. inputs, optically isolated
- Resolution: 12-bit (APCI-3010) or 16-bit (APCI-3016)
- Throughput: 200 kHz
- Voltage inputs: 0-10 V, ± 10 V, 0-5 V, ± 5 V, 0-2 V, ± 2 V, 0-1 V, ± 1 V, freely programmable through software for each channel
- Current inputs: 0-20 mA (option) can be combined freely with voltage inputs
- Gain PGA x1, x2, x5, x10 freely programmable through software for each channel

Analog acquisition

- Different input modes:
 - 1) Simple mode
 - 2) Scan modes
 - 3) Sequence modes
 - 4) Auto Refresh mode
- Trigger functions:
 - Software trigger or
 - external trigger: the analog acquisition (single or sequence) is started through the signal on digital input 0 from 0 V to 24 V
- Onboard FIFO (for 512 Analog values)
- PCI-DMA for analog data acquisition

24 V digital I/O

- 24 V digital I/O enable a high interference distance and a long distance between signal transmitter and data acquisition
- 4 digital inputs, 24 V, optically isolated
- 4 digital outputs, 24 V, optically isolated

TTL I/O

- 24 digital TTL inputs/outputs
- Port1: inputs / Port2: outputs / Port3: I/O
- All I/O are at 5 V through pull-up resistors
- Easy programming through I/O read and write commands

Timer/Counter

- 3 / 3, 16-bit

Watchdog

- 1, 16-bit

Safety features

- For more protection in noisy industrial environment
- Optical isolation 1000 V min.
- Creeping distance IEC 61010-1
- Circuit part of the analog acquisition is separated from the circuit part of the digital function
- Overvoltage protection ± 40 V (analog inputs)
- Protection against high-frequency EMI
- Input filters
- Noise neutralisation of the PC supply
- Connection of the I/O-signals through robust industry-standard 37-pin D-Sub connector

Applications

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

Software

A CD-ROM with the following software and programming examples is supplied with the board.

Software drivers for:

Linux Kernel version 2.4.22 to 2.6.30, real-time drivers for Windows 7(32-bit)/Vista(32-bit)/XP/2000

The board is supplied with **ADDIPACK**.

Drivers for the following software packages:

- LabVIEW up to 7.0 and from 7.0
- LabWindows/CVI

Samples for the following compilers:

Microsoft VC++ 5.0 • Borland C++ 5.01
Visual Basic 5.0 • Delphi 4.0
On request: .NET, LabVIEW from version 7.0

Supported ADDIPACK functions:

- Analog input • Digital input • Digital output
- Interrupt • Watchdog • Timer • Counter

Free driver download on the web:

www.addi-data.com/download

Specifications

Analog inputs

Number of inputs:	16/8/4 SE or 8/4/2 differential inputs
Resolution:	12-bit (APCI-3010) or 16-bit (APCI-3016)
Optical isolation:	1000 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
Gain:	Software programmable (x1, x2, x5, x10)
Throughput:	200 kHz
Trigger:	Through software, timer, external event (24 V input)
Data transfer:	Data to the PC through FIFO memory, Interrupt at EOC (End Of Conversion), DMA transfer at EOC
Interrupts:	End of conversion, at timer overrun, End of scan

Digital I/O

Number of I/O channels:	4 digital inputs, 24 V 4 digital outputs, 24 V
Logical "0" Level:	0-14 V
Logical "1" Level:	19-30 V
Optical isolation:	1000 V through opto-couplers from PC to peripheral
Outputs	High Side, 50 mA

TTL I/O

Number of TTL I/O channels:	24
Programming:	Through write/read commands

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

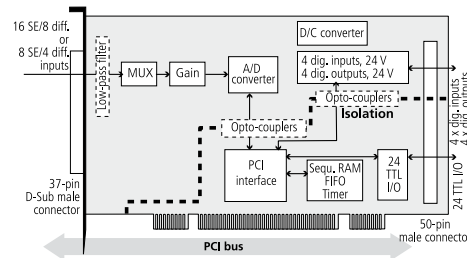
Dimensions:	175 x 99 mm
System bus:	PCI 32-bit 3.3/5V acc. to spec. 2.2 (PCISIG)
Space required:	1 PCI slot for analog inputs, 1 slot opening for digital I/O with FB8001
Operating voltage:	+5 V, ±5 % from the PC
Front connector:	37-pin D-Sub male connector
Additional connector:	50-pin male connector for connecting the dig. I/O
Temperature range:	0 to 60 °C (with forced cooling)

Screw terminal panel PX 901-AG
with cable ST010

Connection box PX_BNC
with cable ST010



Simplified block diagram



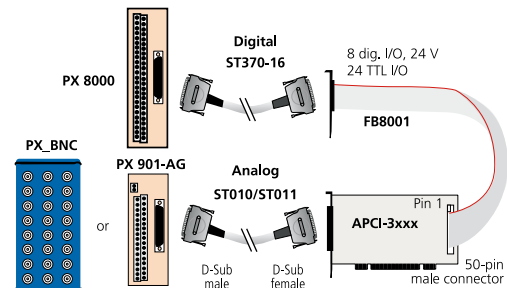
Pin assignment - 37-pin D-Sub male connector

DIFF	SE	SE	DIFF
An. input 0 (+)	An. input 0	An. input 8	An. input 4 (+)
An. input 1 (+)	An. input 1	An. input 9	An. input 5 (+)
An. input 2 (+)	An. input 2	An. input 10	An. input 6 (+)
An. input 3 (+)	An. input 3	An. input 11	An. input 7 (+)
An. input 3 (-)	An. input 7	An. input 15	An. input 7 (-)
An. input 2 (-)	An. input 6	An. input 14	An. input 6 (-)
An. input 1 (-)	An. input 5	An. input 13	An. input 5 (-)
An. input 0 (-)	An. input 4	An. input 12	An. input 4 (-)
	An. signal GND	An. signal GND	
	An. signal GND	An. signal GND	
	An. signal GND	An. signal GND	
	An. signal GND	An. signal GND	

Pin assignment - 50-pin male connector

Assignment	Pin	Assignment	Assignment	Pin	Assignment
Output 3	1	Input 3+	TTL 22	31	TTL 6
Input 3-	3	Output 2	TTL 13	33	TTL 21
Input 2+	5	Input 2-	TTL 5	35	TTL 12
Output 1	7	Input 1 +	TTL 20	37	TTL 4
Input 1-	9	Output 0	TTL 11	39	TTL 19
Input 0+	11	Input 0-	TTL 3	41	TTL 10
GND 0	13	+24 V	TTL 18	43	TTL 2
Not connected	15 to 24	Not connected	TTL 9	45	TTL 17
GND	25	GND	TTL 1	47	TTL 8
TTL 15	27	TTL 23	TTL 16	49	TTL 0
TTL 7	29	TTL 14			

ADDI-DATA connection



Ordering information

APCI-3010 / APCI-3016

Analog input board, optically isolated, 16/8/4 SE or 8/4/2 diff. inputs, 12-/16-bit. Incl. technical description and software drivers.

Versions

APCI-3010-16:	16 SE/8 diff. inputs, 12-bit
APCI-3010-8:	8 SE/4 diff. inputs, 12-bit
APCI-3010-4:	4 SE/2 diff. inputs, 12-bit
APCI-3016-16:	16 SE/8 diff. inputs, 16-bit
APCI-3016-8:	8 SE/4 diff. inputs, 16-bit
APCI-3016-4:	4 SE/2 diff. inputs, 16-bit

Options

Please indicate the number of channels

Option SF:	Precision filter for 1 single-ended channel
Option DF:	Precision filter for 1 diff. channel
Option PC:	Current input 0(4)-20 mA for 1 channel
PC-SE:	for Single-ended
PC-Diff:	for differential

Accessories

PX 901-A:	Screw terminal panel with transorb diodes, for connecting the analog inputs
PX 901-AG:	Same as PX 901-A with housing for DIN rail
PX_BNC:	BNC connection box for connecting the analog inputs
ST010:	Standard round cable, shielded, twisted pairs, 2 m
ST011:	Standard round cable, shielded, twisted pairs, 5 m
PX 8000:	Screw terminal panel for connecting the digital I/O, for DIN rail
FB8001:	Ribbon cable for digital I/O
ST370-16:	Standard round cable, shielded, twisted pairs, 2 m