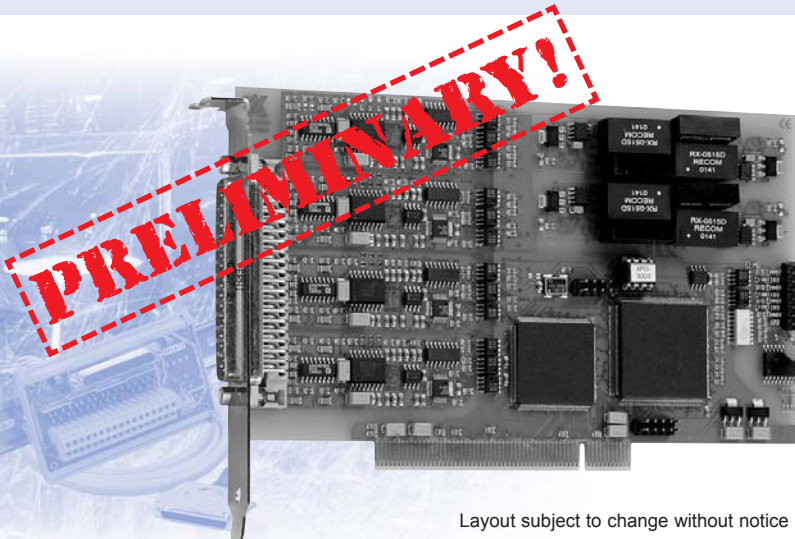


# Analog A/D converter, for simultaneous acquisition, 400 kHz/channel, 16 Bit



Layout subject to change without notice

## **ADDIALOG APCI-3003**

**Fast analog A/D converter**

**4 differential input channels**

**400 kHz per channel data transfer rate**  
**Simultaneous conversion of all channels**

**All channels isolated from each other,**  
**500 V**

**Optical isolation to the peripheral, 500 V**

**16-Bit resolution**

**8 isolated digital I/O, 24 V**

With the new fast A/D converter board APCI-3003, the user can achieve high data transfer rates by a simultaneous conversion of 4 channels at once. The board has 4 differential input channels. Each channel has its own A/D converter. The transfer rate can be set in a flexible way from 100 kHz for each channel, when 16 channels are set, to 400 kHz for each channel, when 4 channels are set. All 4 channels are optically separated from each other up to 500 V.

### **Features**

- PCI interface to the 32-bit data bus
- Data acquisition independent from PCI Clock

### **Analog input channels**

- 4 differential input channels
- 16-bit resolution
- Data transfer rate 400 kHz per channel
- Simultaneous conversion of 4 channels
- Input voltage:  $\pm 10$  V, 0-10 V, 0-5 V,  $\pm 5$  V, 0-2 V,  $\pm 2$  V, 0-1 V,  $\pm 1$  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 acquisition
- 2 timers: timer 0 only for the analog acquisition, timer 1 as cyclic time-counter
- Onboard FIFO buffering

### **Analog acquisition**

- Acquisition triggered through software, timer, external event
- Trigger functions:
  - software trigger or
  - external trigger: the analog acquisition is started through a signal switching from 0 to 24 V on digital input 0.

### **Digital**

- 4 isolated digital input channels, 24 V
- 4 isolated digital output channels, 24 V

### **Safety features**

- Optical isolation 500 V min.
- Creeping distance: 3.2 mm acc. to DIN VDE 0411-100
- Overvoltage protection  $\pm 40$  V
- Protection against high-frequency EMI
- Input filter: 160 kHz
- Noise neutralization of the PC supply

### **EMC tested acc. to 89/336/EEC (CE certification)**

- EN 61000-6-2, EN 55011

### **Applications**

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

### **Software drivers**

In preparation

Current driver list on the web: [www.addi-data.com](http://www.addi-data.com)

Version: 07th January 03

[www.addi-data.com](http://www.addi-data.com)

Sales: +49(0)7223/9493-0  
Fax: +49(0)7223/9493-92

# Analog A/D converter, for simultaneous acquisition, 400 kHz/channel, 16 Bit

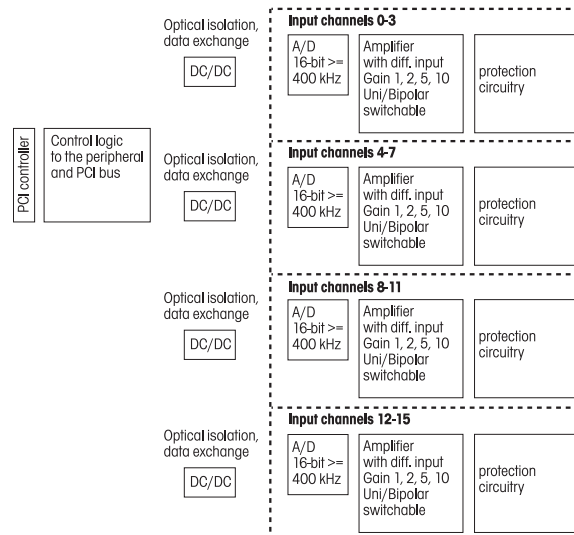


## ADDIALOG APCI-3003

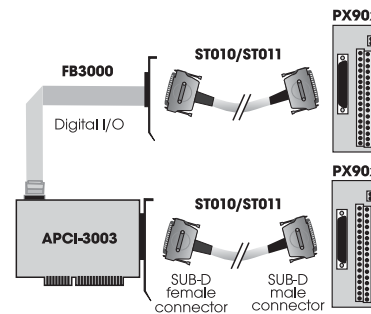
### Specifications

<b>Analog input channels</b>	
Number of input channels:	4 differential input channels
Resolution:	16-bit
Optical isolation:	500 V through optical couplers from the PC to the peripheral
Input range:	Software programmable for each channel 0-10 V, $\pm 10$ V, 0-5 V, $\pm 5$ V, 0-2 V, $\pm 2$ V, 0-1 V, $\pm 1$ V 0-20 mA optional
Gain:	Software programmable (x1, x2, x5, x10)
Data transfer rate:	400 kHz per channel when 4 channels are set 800 kHz per channel when 2 channels are set or 1.6 MHz when 1 channel are set
Trigger:	Through software, timer, external event (24 V input)
Data transfer:	Data to the PC through FIFO memory, I/O command, interrupt at EOC (End Of Conversion), DMA transfer at EOC
Interrupts:	End of Conversion, timer overrun, End of Scan
<b>Digital I/O</b>	
Number of the I/O channels:	4 digital input channels, 24 V, 4 digital output channels, 24 V, 125 mA typ., Open Collector
Logic "0" level:	0-13 V
Logic "1" level:	16-30 V
Optical isolation:	1000 V through optical couplers from the PC for the peripheral
<b>Noise immunity</b>	
Test level:	- ESD: 4 kV    - Fields: 10 V/m - Burst: 4 kV    - Cond. radio interferences: 10 V
<b>Physical and environmental conditions</b>	
Dimensions:	175 x 99 mm
System bus:	PCI 32-bit 5V acc. to specification 2.2 (PCISIG)
Space required:	1 PCI slot for analog input channels, 1 slot opening for digital I/O
Operating voltage:	+5 V, $\pm 5$ % from the PC
Current consumption:	-
Front connector:	37-pin SUB-D pin connector
Additional connector:	16-pin pin connector for ribbon cable for connecting the digital I/O channels
Temperature range:	0 to 60°C (with forced cooling)

### Simplified block diagram



### Connection



**PRELIMINARY!**

## ADDIALOG APCI-3003

Fast isolated analog input board, 16-bit. Incl. technical description and software drivers

### Versions

**APCI-3003:** With 4 differential input channels, 8 digital I/O  
Simultaneous conversion

### Options

**Please specify the number of channels  
to be supplied with the required option**

### Option DC:

Current input for 1 channel 0(4)-20 mA

## ORDERING INFORMATION

### Connection

**PX90x-G:** Terminal board with transil diodes and screw  
terminals, for connecting the analog input channels,  
with housing for DIN rail (in preparation)

**PX901-ZG:** Terminal board with screw terminals 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

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