Multifunction data acquisition, 12-bit or 16-bit

PA 3100 / PA 311

16 single-ended or
8 differential inputs

8/4/2 analog outputs

12-bit resolution for PA 3100
16-bit resolution for PA 311

100 kHz data transfer rate

DMA access

24 TTL I/O, 3 timers

Software trigger

LabVIEW™

LabWindows/CVI™

Features

Analog inputs
- 16 single-ended/8 differential or 8 single-ended/4 differential inputs
- Resolution: PA3100: 12-bit PA 311: 16-bit
- Conversion time: 10 µs
- Overvoltage protection ± 20 V
- Input range: 0-10 V, ± 10 V software-programmable, 0-20 mA optional
- Low-pass filter and current inputs as option
- Gain: 1, 2, 10 freely programmable through software for each channel or freely through resistor
- DMA access for analog data acquisition
- 3 timers: timer 0 and timer 1 only for the analog acquisition, timer 2 programmable as cyclic-time counter

Analog acquisition
- Acquisition of one single channel, several channels or 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 or timer
- Interrupt: end of single channel, end of multichannel, end of scan list

Analog outputs
- 2, 4 or 8 analog outputs
- Resolution: PA 3100: 12-bit PA 311: 16-bit
- Setting time: typ. 6 µs (0-10 V)
- Simultaneous updating of the outputs
- Output voltage range: 0-10 V, ±10 V
- Output current typ. ±5 mA
- Driver for high capacitive loads (500 pF)
- Each output has its own ground line (without optical isolation)

Timer/digital
- 3 timers (82C54), 16-bit
- Parallel TTL I/O port, 24 I/O, interruptible (82C55)

Safety features
- Noise neutralization of the PC voltage supply

EMC tested acc. to 89/336/EEC
- IEC 61326: electrical equipment for measurement, control and laboratory use

Applications

- Industrial process control
- Industrial measurement
- Automatic test equipment
- Temperature monitoring and control
- Control of chemical processes
- Factory automation
- Automated testing
- Voltage measurement
- Laboratory instrumentation

Software drivers

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

Standard drivers for:
Windows 2000 (PA 311) Windows NT/98/95,
Windows 3.11, MS-DOS
Real-time drivers for 2000/NT/98/95

Samples for the following compilers:
Microsoft VC++ 5.0
Microsoft C 6.0
Borland C++ 5.01
Borland C 3.1
Visual Basic 5.0 (PA 311)
Visual Basic 1.0
Turbo Pascal 7.0

Drivers for the following application software:
LabVIEW 5.01

On request:
DiaDem 6/7 (PA 311) • LabWindows/CVI 5.01
Delphi 4.0

Current driver list on the web: www.addi-data.com

Terminal board PX 901-AG
with cable ST010

www.addi-data.com
Sales: +49(0)7223/9493-120
Fax: +49(0)7223/9493-92

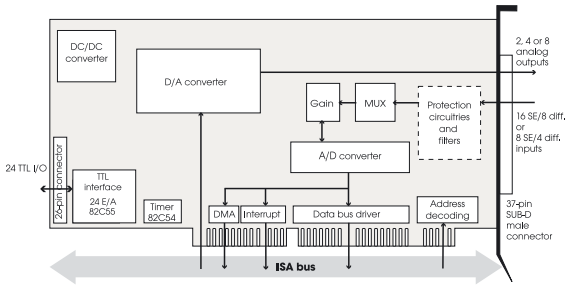
Multifunction-Dataerfassungskarte, 12- or 16-bit

PA 3100 / PA 311

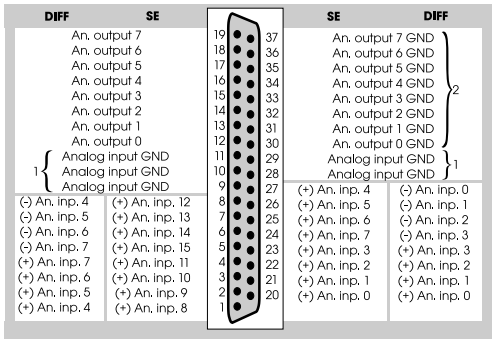
Specifications

Analog inputs	
Number of inputs:	PA 3100: 16 single-ended/8 differential PA 311: 16 single-ended/8 differential or 8 single-ended/4 differential
Resolution:	PA 3100: 12-bit; PA 311: 16-bit
Input range:	0-10 V, ±10 V, adjustable for each channel through software; 0-20 mA optional
Conversion time:	10 µs
Gain:	Programmable gain (x1, x2, x10) or freely through resistor
Overvoltage protection:	± 12 V at power-on
Common mode rejection:	DC at 60 Hz, 90 dB Minimum
Input impedance:	10^{12} Ω//10 nF single-ended, 10^{12} Ω//20 nF differential gegen GND
Trigger:	through software or programmable timer
Interrupts:	IRQ 3, 5 for XT, IRQ 10, 11, 12, 14, 15 for AT
DMA-channels:	5, 6, 7
Analog outputs	
Outputs/resolution:	2/4 or 8 analog outputs, 16-bit
Output range:	0-10 V, ±10 V
Setting time at 2 kΩ, 1000 pF:	from 6 to 10 µs, depending on voltage spikes and temperature range
Overvoltage protection:	±12 V
Max. output current/load:	±5 mA/500 pF, 2kΩ
Short-circuit current:	±25 mA (has to be limited externally)
Integral non-linearity (INL):	±½ LSB max. at 25 °C, ±1 LSB through temperature range
Diff. non-linearity (DNL):	±½ LSB max. at 25 °C, ±1 LSB through temperature range
Noise immunity	
Test level:	- ESD: 4 kV - Fields: 10 V/m - Burst: 2 kV/4 kV Netz - Conducted radio interferences: 10 V
Physical and environmental conditions	
Dimensions:	337 x 114 mm
System bus:	ISA
Place required:	1 AT slot + 1 slot opening (TTL connection)
Operating voltage:	+5 V, ±5 %
Current consumption:	PA 3100-16-8: 1220 mA typ. PA 311-16-8: 1270 mA typ.
Front connector:	37-pin SUB-D male connector 26-pin SUB-D male connector for ribbon cable of the digital I/O
Temperature range:	0 to 60 °C (with forced cooling)

Simplified block diagram

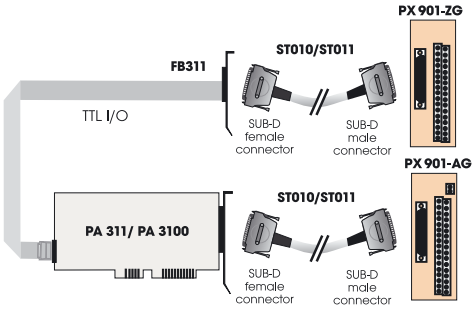


Pin assignment – 37-pin SUB-D male connector



1: The analog inputs have a common ground line
2: The analog outputs have separate ground lines

ADDI-DATA connection



ORDERING INFORMATION

ADDIALOG PA 3100/311

Multifunction data acquisition board, 12-bit or 16-bit incl. technical description and software drivers.

ADDIALOG PA 3100 - 12-bit

PA 3100-168: 16 SE/8 differential inputs, 8 analog outputs
PA 3100-164: 16 SE/8 differential inputs, 4 analog outputs
PA 3100-162: 16 SE/8 differential inputs, 2 analog outputs

Options for PA 3100

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

Option SF: Filter for 1 single-ended input
Option DF: Precision filter for 1 differential input
Option SC: Current inputs 0(4)-20 mA for 1 SE input
Option DC: Current inputs 0(4)-20 mA for 1 diff. input

ADDIALOG PA 311 - 16-bit

PA 311-16-8: 16 SE/8 diff. inputs, 8 analog outputs
PA 311-16-4: 16 SE/8 diff. inputs, 4 analog outputs
PA 311-16-2: 16 SE/8 diff. inputs, 2 analog outputs
PA 311-8-8: 8 SE/4 diff. inputs, 8 analog outputs
PA 311-8-4: 8 SE/4 diff. inputs, 4 analog outputs
PA 311-8-2: 8 SE/4 diff. inputs, 2 analog outputs

Options for PA 311

Option SF: Filter for 1 SE input
Option DF: Precision filter for 1 differential input
Option PC: Current inputs 0(4)-20 mA and precision resistor 250 Ω; Tol. 0,01 %; TK 5; ¼ Ω;
Option PC-SE: for 1 single-ended input
Option PC-Diff: for 1 differential input

Connection for PA 3100 and PA 311

PX 901-A: Screw terminal board with transorb diodes, for connecting the analog I/O
PX 901-AG: Screw terminal board for DIN rail (analog I/O)
ST010: Standard round cable, shielded, twisted pairs, 2 m
ST011: Standard round cable, shielded, twisted pairs, 5 m
FB311: Ribbon cable for connecting the digital I/O
PX 901-ZG: Screw terminal board for DIN rail (TTL I/O)

www.addi-data.com
Sales: +49(0)7223/9493-120
Fax: +49(0)7223/9493-92