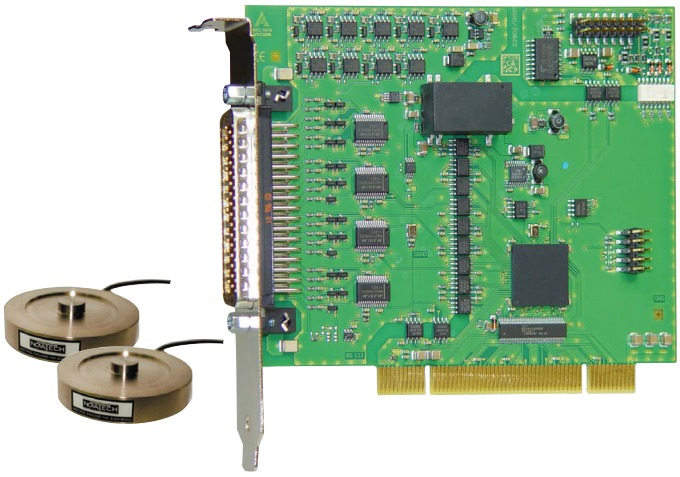
Pressure measurement board, optically isolated, up to 8 channels for strain gauges, 18-bit



APCI-3300

Up to 8 channels for strain gauges

Up to 8 onboard voltage sources

18-bit resolution

Optical isolation 1000 V

Software linearisation

Direct connection of the pressure sensors to the screw terminal panel PX3200-G

RoHS 2002/95/EC

PCI 32-bit

Windows 64/32-bit drivers

LabVIEW™ *

LabWindows/CVI™ *

*** On request**

Features

- PCI 3.3 V or 5 V

Analog inputs

- 18-bit resolution, unipolar, 16-bit accuracy
- 8 or 4 differential inputs for strain gauges
- Voltage range from 0 to + 1.25 V
- 4 or 8 voltage sources for the connected pressure sensors
- Output voltage for the voltage sources 5 V, 30 mA
- Gain and offset calibration
- Calculation of the pressure value through software
- Programmable gain
- 16-bit accuracy with a sample rate of 20, 40, 80 or 160 Hz

Analog acquisition

- Acquisition triggered through software, timer, external event
- Trigger functions:
  - Software trigger or
  - External trigger: the analog acquisition (single or sequence) is started through signal switching from 0 V to 24 V at the digital input 0.
- Connection of linear sensors (Wheatstone Bridge)

Digital

- 4 digital inputs, 24 V and 3 digital outputs, open collector, optically isolated

Safety features

- Optical isolation 1000 V
- Creeping distance IEC 61010-1
- Protection against overvoltage (±30 V) and high-frequency EMI

Software

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

Standard drivers for:

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

Drivers and samples for the following compilers and software packages:

- .NET
- Microsoft VC++ • Borland C++
- Visual Basic • Delphi
- LabVIEW

ADDIPACK functions

Pressure • Digital input • Digital output

On request:

Further operating systems, compilers and samples.

Driver download: www.addi-data.com, download menu

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

Specifications

Analog inputs

Resolution:	18-bit, unipolar
Number of inputs:	8 or 4 analog inputs for strain gauges, one voltage source per channel
Input type:	Differential channels
Optical isolation:	1000 V through opto-couplers from PC to peripheral
Accuracy:	16-bit
Overvoltage protection:	± 30 V
Input voltage range:	0 to 1.25 V / PGA
Input amplifier (PGA):	1, 2, 4, 8, 16, 32, 64, 128
Conversion start:	Through software or external trigger, with or without timer
Voltage sources:	4 or 8
Output voltage for the voltage sources:	5 V, 30 mA (other values on request)

Digital I/O

Number of I/O channels:	4 digital inputs, 24 V, 3 digital outputs, 24 V, 125 mA typ., open collector
Logical "0" level:	0-5 V
Logical "1" level:	12-30 V
Input current at 24 V:	2 mA
Max. switching current of the outputs:	125 mA
Optical isolation:	1000 V through opto-couplers for analog and digital channels

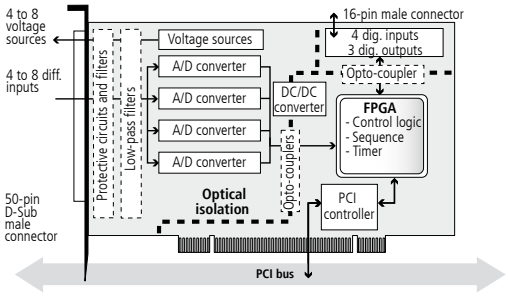
EMC – Electromagnetic compatibility

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:	131 x 99 mm
System bus:	PCI 32-bit 3.3 / 5 V acc. to spec. 2.2 (PCISiG)
Space required:	1 PCI slot and 1 slot opening for the digital I/O
Operating voltage:	+5 V, ±5 % from the PC, +3.3 V
Current consumption (typ.):	570 to 600 mA depending on the version
Front connector (analog channels):	50-pin D-Sub male connector
Additional connector:	16-pin male connector for connecting of the digital I/O via ribbon cable with 37-pin D-Sub connector
Operating temperature:	0 to 60 °C (with forced cooling)

Simplified block diagram



Pin assignment – 50-pin D-Sub male connector

Pin		Pin		Pin		Pin		
34	NC	34	18	1	NC	1	NC	18
35	EXC 0	35		2	CH0+	2	NC	19
36	GND 0	36		3	CH0-	3	NC	20
37	EXC 1	37		4	CH1+	4	NC	21
38	GND 1	38		5	CH1-	5	NC	22
39	EXC 2	39		6	CH2+	6	NC	23
40	GND 2	40		7	CH2-	7	NC	24
41	EXC 3	41		8	CH3+	8	NC	25
42	GND 3	42		9	CH3-	9	NC	26
43	EXC 4	43		10	CH4+	10	NC	27
44	GND 4	44		11	CH4-	11	NC	28
45	EXC 5	45		12	CH5+	12	NC	29
46	GND 5	46		13	CH5-	13	NC	30
47	EXC 6	47		14	CH6+	14	NC	31
48	GND 6	48		15	CH6-	15	NC	32
49	EXC 7	49		16	CH7+	16	NC	33
50	NC	50	33	17	CH7-	17		

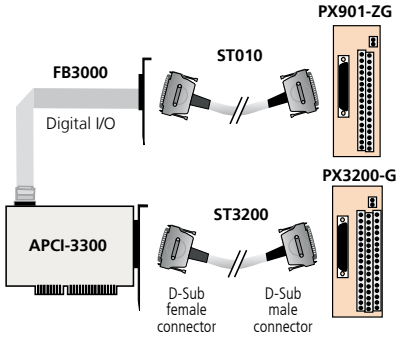
Module 0 (input 0-1)
Module 1(input 2-3)
Module 2 (input 4-5)
Module 3 (input 6-7)

NC: not connected
EXC: Voltage source

Pin assignment – 16-pin male connector

24 V	1 ■ ■ 2	GND
Dig. output 0 (+)	3 ■ ■ 4	Dig. output 0 (-)
Dig. output 1 (+)	5 ■ ■ 6	Dig. output 1 (-)
Dig. output 2 (+)	7 ■ ■ 8	Dig. output 2 (-)
Dig. input 0 (+)	9 ■ ■ 10	Dig. input 0 (-)
Dig. input 1 (+)	11 ■ ■ 12	Dig. input 1 (-)
Dig. input 2 (+)	13 ■ ■ 14	Dig. input 2 (-)
Dig. input 3 (+)	15 ■ ■ 16	Dig. input 3 (-)

ADDI-DATA connection



Ordering information

APCI-3300

Pressure measurement board, optically isolated, up to 8 channels for strain gauges, 18-bit. Incl. technical description and software drivers.

Versions

APCI-3300-4: 4 analog inputs for pressure signals
APCI-3300-8: 8 analog inputs for pressure signals

Accessories

PX3200-G: Screw terminal panel with housing for DIN rail
PX3200: Screw terminal panel with 4 mounting holes
ST3200: Standard round cable, shielded, twisted pairs, 2 m
FB3000: Ribbon cable for dig. I/O on separate bracket
PX901-ZG: Screw terminal panel for digital I/O for DIN rail
ST010: Standard round cable, shielded, twisted pairs, 2 m
ST011: Standard round cable, shielded, twisted pairs, 5 m