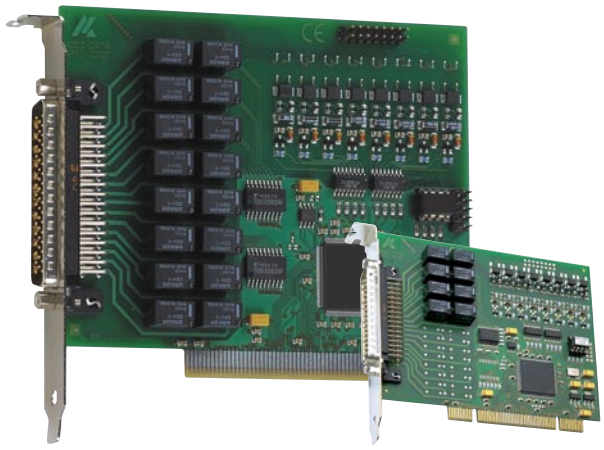
Relay board, optically isolated, 8/16 relays, 8 digital inputs, 24 V



APCI-2200-8-8_3,3V

APCI-2200 /APCI-2200-8-8_3,3V

PCI 5 V (APCI-2200)

PCI 3.3 V (APCI-2200-8-8_3,3V)

8 or 16 relay output channels

Max. switching voltage 60 VDC, 48 VAC

max. switching current 1 A

8 digital inputs 24 V

Optical isolation 1000 V

RoHS 2002/95/EC

PCI 32-bit

LabVIEW™

LabWindows/CVI™

DIAdem

Features

- PCI 5 V (APCI-2200)
- PCI 3.3 V (APCI-2200-8-8_3,3V)

Relays

- 8 or 16 electromechanical relays with change-over contacts
- Max. switching voltage for the relays: 60 VDC, 48 VAC
- Max. switching capacity: 30 W, max. 1 A
- Short response time
- Watchdog: switched on/off through software

Digital inputs

- 8 inputs, optically isolated
- Input voltage: 12-24 V (DC)

Safety features

- EMC tested
- Watchdog activity can be read back
- Optical isolation of the relays
- Creeping distance IEC 61010-1

Applications

- Industrial digital I/O controlling
- Automatic test equipment
- Signal switching
- Interface to electromechanical relays
- ON/OFF monitoring of motors, lights...
- Alarm monitoring
- Machine interfacing
- ...

Software drivers

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

Standard drivers for:

Linux Kernel version 2.4.2,
Windows Vista (32-bit)/XP/2000/NT/98.
Real-time drivers for
Windows Vista (32-bit)/XP/2000/NT/98.
The board is supplied with the universal software **ADDIPACK** (see page 11).

Drivers for the following software packages:

- LabVIEW 5.01
- LabWindows/CVI
- DIAdem

Samples for the following compilers:

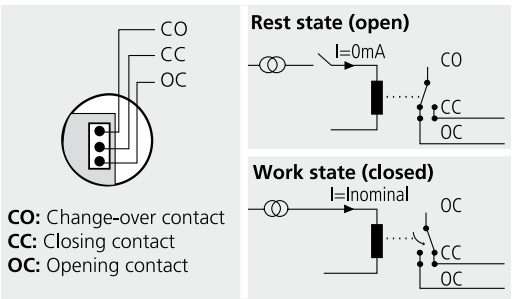
- Microsoft VC++ 5.0
- Borland C++ 5.01
- Visual Basic 5.0
- Delphi 4.0

Supported ADDIPACK functions:

- Digital input
- Digital output
- Watchdog

Current driver list on the web

Function principle of the relays



CO: Change-over contact
CC: Closing contact
OC: Opening contact

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Relay board, optically isolated, 8/16 relays, 8 digital inputs, 24 V

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Specifications

Relays

Type of contacts:	8/16 change-over
Max. switching voltage:	60 VDC, 48 VAC
Max. switching current:	1 A
Max. switching capacity:	30 W
Contact resistance:	< 100 mΩ
Contact material:	Ag and Au plated
Responding time:	Max. 5 ms, typ. 2.5 ms
Release time:	Max. 5 ms, typ. 0.9 ms
Mechanical life:	5 x 10^6 operations
Electrical life:	10^5 operations at rated load

Digital inputs

Number of inputs:	8
Optical isolation:	Through opto-couplers, 1000 V
Nominal voltage:	12 - 24 V (DC)
Nominal input current at 12 - 24 V (DC):	5 - 8 mA
Signal delay:	70 µs (at 24 V)
Maximal input frequency:	5 kHz (at 24 V)

Watchdog

Watchdog time:	20 ms to 5 s in steps of 20 ms

Safety

Test voltage:	1000 V
Watchdog:	8-bit, programmable, 20 ms to 5 s in steps of 20 ms

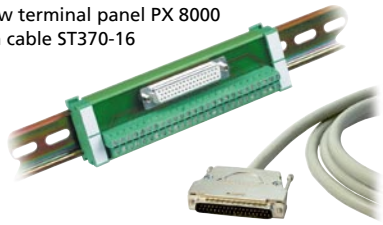
EMC – Electromagnetic compatibility

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

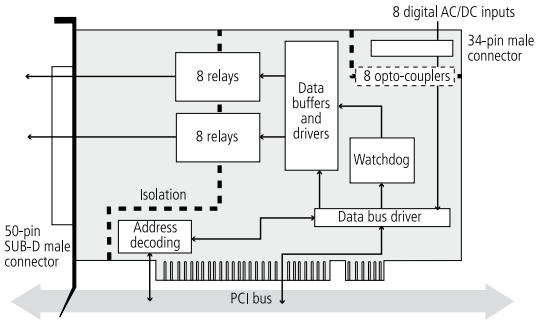
Dimensions:	131 x 99 mm (PCI short)
System bus:	PCI 32-bit 5 V acc. to specification 2.1 (PCISIG) or 3.3 V
Space required:	PCI short, 1 PCI slot
Operating voltage:	+5 V, ± 5 % from the PC
Current consumption:	550 mA ± 10 % typ. (APCI-2200-16-8)
Front connector:	50-pin SUB-D male connector
Additional connector:	16-pin male connector. APCI-2200-16-8: Connection with delivered ribbon cable FB2200-3. Connects the board to a bracket with a 37-pin SUB-D male connector. For connecting the PX 901-ZG.
Temperature range:	0 up to 60 °C (with forced cooling)

Screw terminal panel PX 8000
with cable ST370-16



APCI-2200

Simplified block diagram



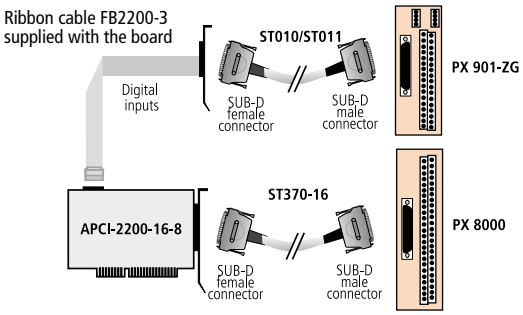
Pin assignment – 50-pin SUB-D connector APCI-2200-16-8

Pin		Pin		Pin		Pin	
34	OC of relay 0	18	CC of relay 0	34		1	CO of relay 0
35	OC of relay 1	19	CC of relay 1	35		2	CO of relay 1
36	OC of relay 2	20	CC of relay 2	36		3	CO of relay 2
37	OC of relay 3	21	CC of relay 3	37		4	CO of relay 3
38	OC of relay 4	22	CC of relay 4	38		5	CO of relay 4
39	OC of relay 5	23	CC of relay 5	39		6	CO of relay 5
40	OC of relay 6	24	CC of relay 6	40		7	CO of relay 6
41	OC of relay 7	25	CC of relay 7	41		8	CO of relay 7
42	OC of relay 8	26	CC of relay 8	42		9	CO of relay 8
43	OC of relay 9	27	CC of relay 9	43		10	CO of relay 9
44	OC of relay 10	28	CC of relay 10	44		11	CO of relay 10
45	OC of relay 11	29	CC of relay 11	45		12	CO of relay 11
46	OC of relay 12	30	CC of relay 12	46		13	CO of relay 12
47	OC of relay 13	31	CC of relay 13	47		14	CO of relay 13
48	OC of relay 14	32	CC of relay 14	48		15	CO of relay 14
49	OC of relay 15	33	CC of relay 15	49		16	CO of relay 15
50	-			50	18 33	17	-

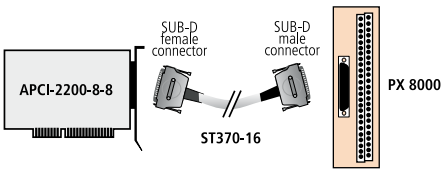
OC: Opening contact CC: Closing contact CO: Change-over contact

ADDI-DATA connection

Example 1: APCI-2200-16-8
- Connection of the relay outputs through screw terminal panel PX 8000
- Connection of the digital inputs through ribbon cable to the screw terminal board PX 901-ZG



Example 2: APCI-2200-8-8, APCI-2200-8, APCI-2200-16
Connection of the relay outputs and the digital inputs through the front connector to the screw terminal panel



Ordering information

APCI-2200 / APCI-2200-8-8_3,3V

Relay board, optically isolated, 8/16 relays output channels, 8 digital inputs, 24 V. Incl. technical description and software drivers.

APCI-2200-16-8:	16 relays, 8 dig. inputs, with ribbon cable for the connection of the dig. inputs, PCI 5 V
APCI-2200-8-8:	8 relays, 8 digital inputs, 24 V, PCI 5 V
APCI-2200-8-8_3,3V:	8 relays, 8 digital inputs, 24 V, PCI 3.3 V
APCI-2200-16:	16 relays, PCI 5 V
APCI-2200-8:	8 relays, PCI 5 V

Accessories

PX 8000:	Screw terminal panel, 50-pin, for DIN rail
ST370-16:	Shielded round cable, 2 m
PX 901-ZG:	Screw terminal panel for DIN rail

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