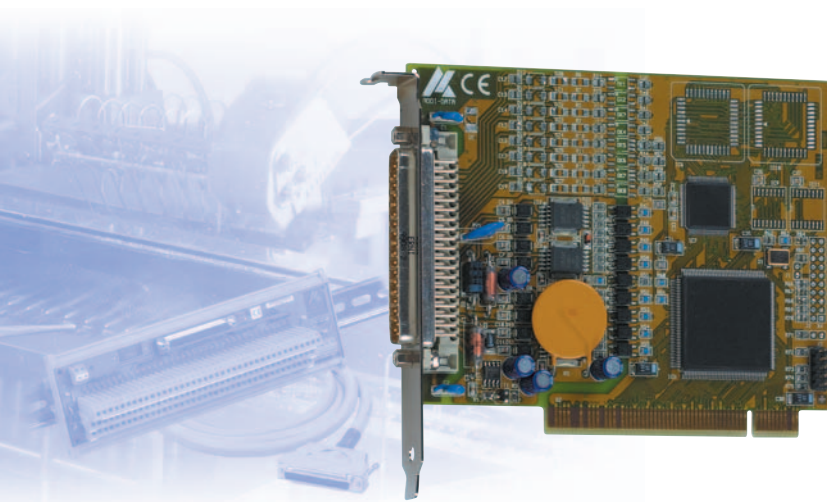


# Digital output board, 16 isolated channels, 24 V



## APCI-2016

16 digital outputs, 24 V, 500 mA/channel

Optical isolation 1000 V

Output filters, short-circuit protection

Watchdog

After power-on the outputs are reset to "0"



LabWindows/CVI™

### Features

- PCI Interface to the 32-bit data bus
- 16 isolated digital outputs, 10 to 36 V
- Output current per channel 500 mA
- Watchdog for resetting the outputs to "0"
- One ground line for all outputs
- After power-on the outputs are reset to "0"

### Safety features

- Optical isolation 1000 V
- Creeping distance IEC 61010-1 (VDE411-1)
- Protection against fast transients (burst) overvoltage, electrostatic discharge and high-frequency EMI
- Short-circuit current for 16 outputs ~ 3 A typ.
- Short-circuit current per output ~ 1.5 A typ.
- Self-resetting fuse (electronic fuse)
- Overtemperature and overvoltage protection
- 24 V power outputs with protection diodes and filters
- Output capacitors against electromagnetic emissions
- External 24 V voltage supply screened through protection circuitry
- Shut-down logic when the external supply voltage drops below 5 V

### EMC tested acc. to 89/336/EEC

- IEC 61326: electrical equipment for measurement, control and laboratory use

### Applications

- Control of industrial PC-based process
- Signal switching
- Interface to electromechanical relays
- Automatic test equipment
- ON/OFF monitoring of motors, lights ...
- Watchdog timer
- Machine interfacing, ...

### Software drivers

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

#### Standard drivers for:

Linux kernel version 2.4.2, Windows XP/2000/NT/98.  
Real-time driver for Windows XP/2000/NT/98.

The board is supplied with the universal software ADDIPACK (see Page 5).

#### Drivers for the following application software:

LabVIEW 5.01  
LabWindows/CVI

#### Samples for the following compilers:

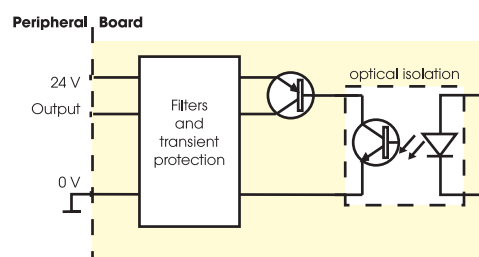
Microsoft VC++ 5.0 • Borland C++ 5.01  
Visual Basic 5.0 • Delphi 4.0

#### ADDIPACK functions supported:

Digital output • Watchdog

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

### Protection circuitry for the output channels



# Digital output board, 16 isolated channels, 24 V

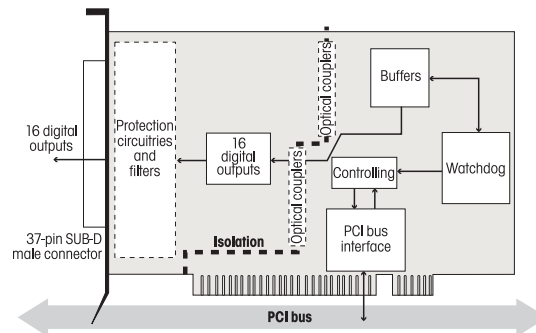


APCI-2016

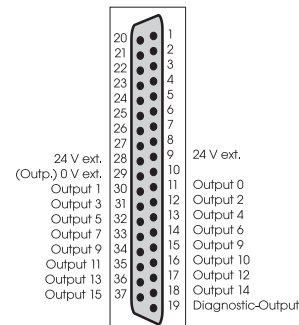
## Specifications

Digital outputs	
Number of outputs:	16
Optical isolation:	through optical couplers, 1000 V from the PC to the peripheral
Output type:	High-side (load at ground) acc. to IEC 1131-2
Nominal voltage:	24 V
Supply voltage:	10 to 36 V, min. 5 V (through front connector)
Max. current for 16 outputs:	3 A typ.
Output current/output:	500 mA typ.
Short-circuit current/output	
Shut-down at 24 V, $R_{load} < 0,1\Omega$ :	1.5 A
RDS ON resistance:	0.4 $\Omega$ max.
Switch-on time:	I out=0.5 A, load = resistance: 100 $\mu$ s
Switch-off time:	I out=0.5 A, load = resistance: 60 $\mu$ s
Overtemperature (shut-down):	170 °C (output driver)
Temperature hysteresis:	20 °C (output driver)
Safety	
Shut-down logic:	When the ext. 24 V voltage drops below 5 V: the outputs are switched off.
Watchdog:	8-bit, programmable, from 20 ms to 5 s in steps of 20 ms
Noise immunity	
Test level:	- ESD: 4 kV - Fields: 10 V/m - Burst: 4 kV - Conducted radio interferences: 10 V
Physical and environmental conditions	
Dimensions:	131 x 99 mm
System bus:	PCI 32-bit 5 V acc. to specification 2.1 (PCISIG)
Space required:	short board, 1 PCI slot
Operating voltage:	+5 V, $\pm 5\%$ from PC
Current consumption:	220 mA $\pm 10\%$ typ.
Front connector:	37-pin SUB-D male connector
Temperature range:	0 to 60 °C (with forced cooling)

## Simplified block diagram



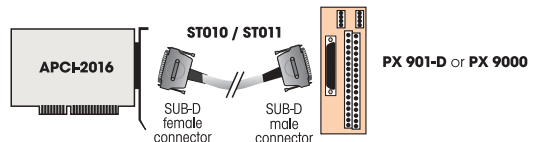
## Pin assignment – 37-pin SUB-D male connector



## ADDI-DATA connection

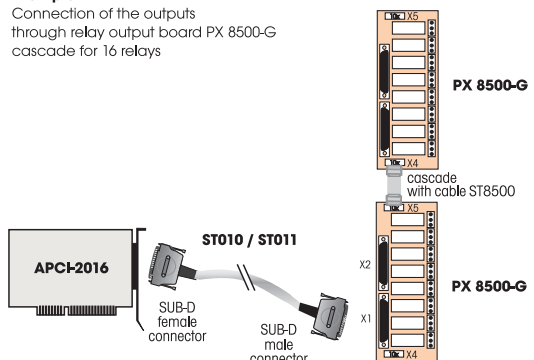
### Example 1

Connection of the outputs through screw terminal boards



### Example 2

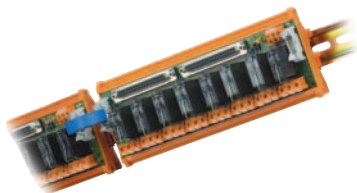
Connection of the outputs through relay output board PX 8500-G cascade for 16 relays



Screw terminal board PX 901-DG  
with cable ST010



Relay output board PX 8500-G



## ADDINUM APCI-2016

**APCI-2016:** Digital output board, 16 isolated channels, 24 V. Incl. technical description and software drivers

### Connection

- PX 901-D:** Screw terminal board, LED status display
- PX 901-DG:** Screw terminal board, LED status display for DIN rail
- PX 9000:** 3-row screw terminal board for DIN rail, LED status display
- PX 8500-G:** Relay output board for DIN rail, cascadable to 32 relays, 220 V, 10 A

- ST010:** Standard cable, shielded, twisted pairs, 2 m
- ST011:** Standard cable, shielded, twisted pairs, 5 m
- ST010-S:** Same as ST010, for high currents (24V supply separately)
- ST8500:** Ribbon cable for cascading two PX 8500-G

## ORDERING INFORMATION

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

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