

# Digital input/output board, 32 isolated channels, 24 V



also for **PCI**  
see page 28



LabVIEW™



LabWindows/CVI™



DASYLab™

## Features

- PCI Interface to the 32-bit data bus
- 3 timers programmable by software
- Connector and software compatible to digital I/O boards PA 1500/APCI-1500
- Monitoring program for testing and setting the board functions

## Inputs

- 16 isolated digital inputs, 24 V, incl. 14 interruptible
- Protection against pole reversal
- All inputs are filtered

## Outputs

- 16 isolated digital outputs, 10 to 36 V
- Output current per channel 500 mA
- Timer-programmable watchdog for resetting the outputs to "0"
- Diagnostic report through status register in case of short-circuit, overtemperature, voltage drop or watchdog
- Interrupt triggered through watchdog, timer, error
- At power-on, the outputs are reset to "0"
- 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

## 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
- Separate grounds for inputs and outputs channels

## EMC tested according to 89/336/EEC

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

## CPCI-1500

**16 digital inputs, 24 V,  
including 14 interruptible inputs**

**16 digital outputs, 24 V, 500 mA/channel**

**Optical isolation 1000 V**

**Input and output filters**

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

**MTBF: 85,150 hours at 45 °C**

**Timer, Watchdog**

## Applications

- Industrial I/O control
- PLC connection
- 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/98/95, Windows 3.11, MS-DOS  
Real-time driver for Windows XP/2000/NT  
Monitoring program ADDIMON

### Drivers for the following application software :

LabVIEW 5.01  
LabWindows/CVI 5.01

### Samples for the following compilers:

Microsoft VC++ 5.0, Microsoft C 6.0, Borland C++ 5.01, Borland C 3.1, Visual Basic 1.0/4.0/5.0, Delphi 1, Delphi 4, Diadem 6/7, Turbo Pascal 7.0

### On request:

DasyLab 6/7 • Embedded NT • RTX-Treiber

### ADDIPACK functions on request:

Digital Input with or without IRQ • Digital Output

# Digital input/output board, 32 isolated channels, 24 V



CPCI-1500

## Specifications

### Digital inputs

Number of inputs:	16 (common ground acc. to IEC 1131-2)
Interruptible inputs:	14, IRQ line selected through BIOS
Optical isolation:	through optical couplers, 1000 V from the PC to the peripheral
Compare logic:	AND and OR mode; OR priority
Nominal voltage:	24 V
Input current at 24 V:	6 mA typ.
Logic input level:	U nominal: 24 V
UH max:	30 V/Current 9 mA typ.
UH min.:	19 V/Current 2 mA typ.
UL max.:	14 V/Current 0,6 mA typ.
UL min.:	0 V/Current 0 mA typ.
Signal delay:	70 µs (at 24 V inputs)
Maximum input frequency:	5 kHz (at 24 V)

### Digital outputs

Number of outputs:	16, optically isolated to 1000 V through optical couplers
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 µs
Switch-off time:	I out=0.5 A, Load = resistance: 60 µs
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.
Diagnostic:	Status bit or interrupt to the PC
Timer:	3
Watchdog:	Timer-programmable, 17 µs to 36 s

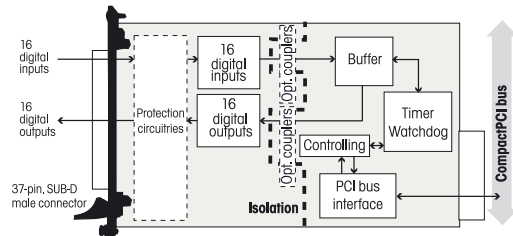
### Noise immunity

Test level:	- ESD: 4 kV
	- Fields: 10 V/m
	- Burst: 4 kV
	- Conducted radio interferences: 10 V

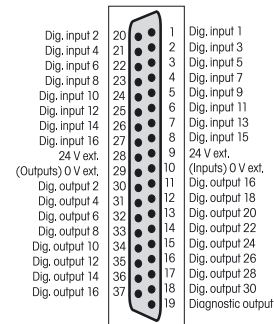
### Physical and environmental conditions

Dimensions:	3U/4TE
System bus:	CompactPCI 32-bit 5 V acc. to spec. 2.1 (PCISIG)
Space required:	short board
Operating voltage:	+5 V, $\pm 5\%$ from PC
Current consumption:	400 mA typ.
Front connector:	37-pin SUB-D male connector
Temperature range:	0 to 60 °C (with forced cooling)

## Simplified block diagram



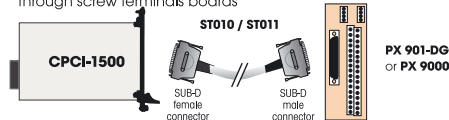
## Pin assignment – 37-pin SUB-D male connector



## ADDI-DATA connection

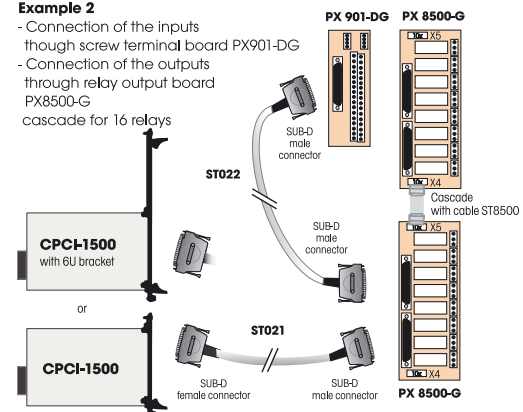
### Example 1

Connection of the inputs and outputs through screw terminals boards



### Example 2

- Connection of the inputs through screw terminal board PX901-DG  
- Connection of the outputs through relay output board PX8500-G cascade for 16 relays



## ORDERING INFORMATION

### ADDINUM CPCI-1500

**CPCI-1500:** Digital input/output board, 32 isolated I/O channels, 24 V. 3U European size  
Incl. technical description, software drivers and monitoring program

### Option

**URS-1500-6U:** 6U bracket for mounting in a 6U housing

### Zubehör

**PX 901-D:** Terminal board with screw terminals, LED status display

**PX 901-DG:** Terminal board with screw terminals, LED status display for DIN rail

**PX 9000:** 3-row terminal board with screw terminals for DIN rail, LED status display

**PX 8500-G:** Relay output board for DIN rail, cascable

**ST010:** Standard round cable, shielded, twisted-pairs, 2 m

**ST011:** Standard round cable, shielded, twisted-pairs, 5 m

**ST010-S:** Same as ST010, for high currents (24 V supply separately)

**ST021:** Round cable between CPCI-1500 and PX 8500, shielded, twisted-pairs, 2 m

**ST022:** Round cable between PX 8500 and PX 901, shielded, 2 m

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