

# Digital output board, 32 isolated channels, 24 V



## PA 2000

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

**Optical isolation 1000 V**

**Overvoltage protection**

**Short-circuit protection**

**3 timers**

**Diagnostic report in case of error**

**Watchdog**



LabVIEW™



LabWindows/CVI™



### Features

#### 32 digital outputs, 24 V, isolated

- Output current: 500 mA
- Voltage range: 10 to 36 V
- Diagnostic reports, readable through status register in case of short-circuit, overtemperature, voltage drop or watchdog
- 3 x 16-bit timer (82C54):
  - Timer as programmable watchdog for the reset of the outputs to "0"
  - Function release through software
  - Control of 2 output channels for generating square-wave signals
- Interrupt triggered through error on the outputs or through timer2
- Addressing through DIP switches
- 16-bit or 8-bit data bus
- 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
- Maximum output current for 32 output channels: 6 A typ. (2 x 3 A)
- Self resetting fuse (electronic fuse)
- Short-circuit current per output 1.5 A typ.
- Output capacitors minimise electromagnetic emissions
- Fast demagnetization in case of inductive loads
- External 24 V supply screened through a protection circuitry

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

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

### Applications

- PLC connection
- Industrial digital output control
- Signal switching
- Interface to electromechanical relays
- Automatic test equipment
- 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:

Windows 2000/NT/98/95, Windows 3.11, MS-DOS  
Real-time drivers for Windows 2000/NT

#### Drivers for the following application software:

LabVIEW 5.01

#### Samples for the following compilers:

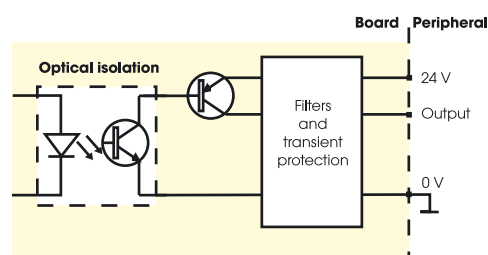
Microsoft VC++ 5.0  
Microsoft C 6.0  
Borland C++ 5.01  
Borland C 3.1  
Visual Basic 5.0  
Visual Basic 1.0  
Delphi 4  
Turbo Pascal 7.0

#### On request:

DiaDem 6/7  
LabWindows/CVI 5.01

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

### Protection circuitry for the output channels



# Digital output board, 32 isolated channels, 24 V

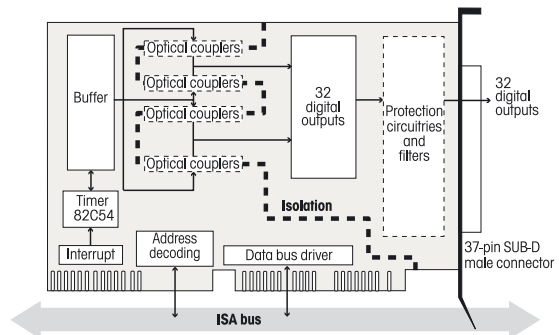


PA 2000

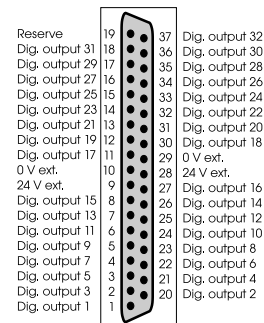
## Specifications

Digital outputs	
Outputs:	32
Output type:	High-side (load at ground) acc. to IEC 1131-2
Optical isolation:	through optical couplers, 1000 V from the PC to the peripheral
Nominal voltage:	24 V
Supply voltage:	10 to 36 V, min. 5 V (shut-down) through front connector
Max. current for 32 outputs:	6 A typ. (2x3 A)
Output current/channel:	500 mA typ./channel
Output current for 16 channels:	200 mA typ./channel
Short-circuit current/ 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: 120 $\mu$ s
Switch-off time:	I out=0.5 A, Load = resistance: 40 $\mu$ 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. Diagnostic: status bit or interrupt to PC
Counter or timer:	3
Watchdog:	Timer programmable, 2 ms to 65 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:	156 x 99 mm
System bus:	ISA, XT or AT slot
Place required:	short board
Operating voltage:	+5 V, $\pm 5\%$ from PC / 174 mA
Front connector:	37-pin SUB-D male connector
Temperature range:	0 to 60 °C (with forced cooling)

## Simplified block diagram



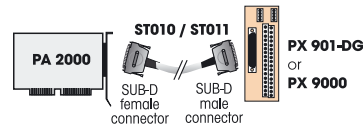
## Pin assignment – 37-pin SUB-D male connector



## ADDI-DATA connection

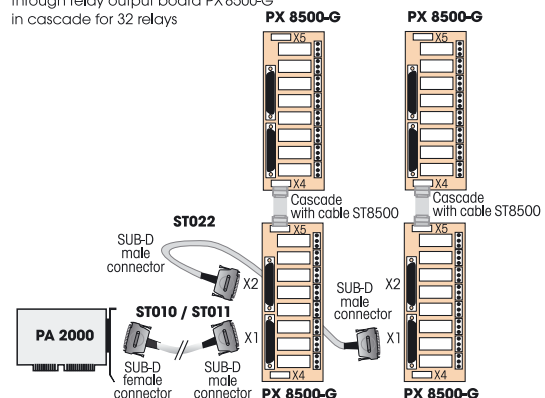
### Example 1

Connection of the outputs through screw terminal boards



### Example 2

Connection of the outputs through relay output board PX 8500-G in cascade for 32 relays



Terminal board PX 9000 and PX 901-DG with cable ST010



## ADDINUM PA 2000

**PA 2000:** Digital output board, 32 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

- ST010:** Standard round cable, shielded, twisted pairs, 2 m
- ST011:** Standard round cable, shielded, twisted pairs, 5 m
- ST010-S:** Wie ST010, for high currents (24V supply separately)
- ST022:** Round cable between 2 PX 8500-G, shielded, 2 m
- ST8500:** Ribbon cable for cascading two PX 8500

## ORDERING INFORMATION

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

Sales: +49(0)7223/9493-120  
Fax: +49(0)7223/9493-92