Digital I/O board, 32 isolated channels, 24 V

PA 1500

16 digital inputs 24 V, incl. 14 interruptible inputs

16 digital outputs, 24 V, 500 mA/channel

Optical isolation 1000 V

input and output filter

Watchdog

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

Timer

LabVIEW™

LabWindows/CVI™

Features

Inputs

- 16 isolated inputs, 24 V, incl. 14 interruptible
- Voltage reversal protection
- All inputs are filtered

Outputs

- 16 isolated outputs, 10 to 36 V
- Output current per channel 500 mA
- At Power-on, the outputs are reset to "0"
- Timer programmable watchdog for resetting the outputs to "0"
- Diagnostic report through status register in case of short-circuit, overtemperature, voltage drop or watchdog
- 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 output with protection diodes and filters
- Output capacitors minimise electromagnetic emissions
- Voltage supply screened through a protection circuitry
- Interrupt triggered through watchdog
- Address range freely configurable through DIP switches, 8-bit/16-bit access

Safety features

- Optical isolation 1000 V
- Creeping distance IEC 61010-1 (VDE411-1)
- Protection against fast transients (Burst), overvoltage, electrostatic discharge and EMI
- Separate ground line for the inputs and the outputs
- 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

- PLC connection
- Control of industrial PC-based process
- Industrial measurement
- Acquisition of sensor data
- Signal analysis
- Machine interface
- ...

Software drivers

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

Standard drivers for:
Windows XP/2000/NT/98/95, Windows 3.11, MS-DOS,
Real-time drivers for Windows XP/2000/NT/98/95
Monitorprogramm ADDIMON

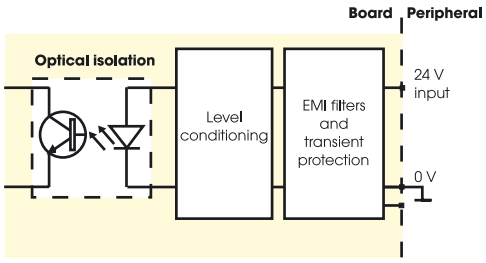
Drivers for the following application software:
LabVIEW 5.01, LabWindows/CVI 5.01

Samples for the following compilers:
Microsoft VC++ 5.0, Microsoft C 6.0, Borland C++ 5.01,
Borland C 3.1, Visual Basic 5.0, Delphi 4,
Turbo Pascal 7.0

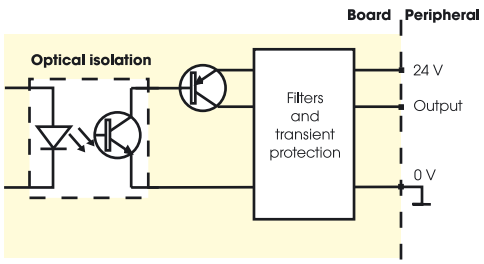
On request:
DiaDem 6, Visual Basic 1.0

Current driver list on the web: www.addi-data.com

Protection circuitry for the input channels



Protection circuitry for the output channels



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Digital I/O board, 32 isolated channels, 24 V

ADDI-DATA®

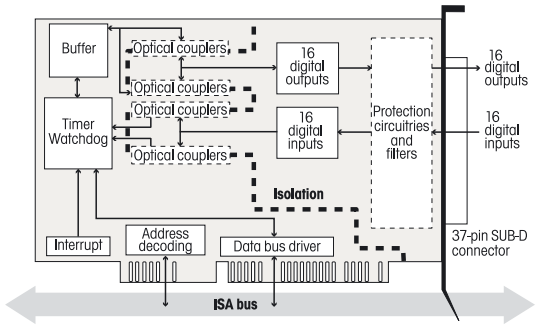
PA 1500

Specifications

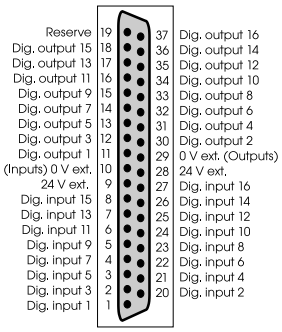
Digital inputs	
Number of inputs:	16 (Common ground acc. to IEC 1131-2)
Optical isolation:	through optical couplers, 1000 V from the PC to the peripheral
Interruptible inputs:	14 of the 16 digital inputs
Interrupt lines:	IRQ 3, 5 for XT, IRQ 10, 11, 12, 14, 15 for AT
Interrupt comparison logic:	AND and 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)
Maximum input frequency:	5 kHz (at 24 V)
Digital outputs	
Outputs:	16 outputs, isolated to 1000 V
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.
Output current for 16 channels:	200 mA typ. per channel
Short-circuit current/output Shut-down at 24 V, R_{load} < 0.1Ω:	1.5 A
RDS ON resistance:	0.4 Ω max.
Switch-on time:	I out=0.5 A, Load = resistance: 120 µs
Switch-off time:	I out=0.5 A, Load = resistance: 40 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 PC
Watchdog:	Timer-programmable, 5 µs to 9 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
Place required:	short board, 1 AT or XT slot
Operating voltage:	+5 V, ± 5 % from PC
Current consumption:	130 mA typ.
Front connector:	37-pin SUB-D male connector
Temperature range:	0 to 60 °C (with forced cooling)

Terminal board PX 901-DG and relay output board PX 8500-G with cable ST010

Simplified block diagram

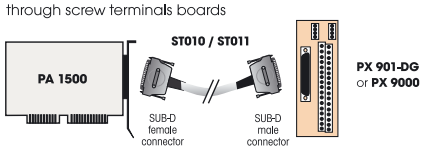


Pin assignment – 37-pin SUB-D male connector

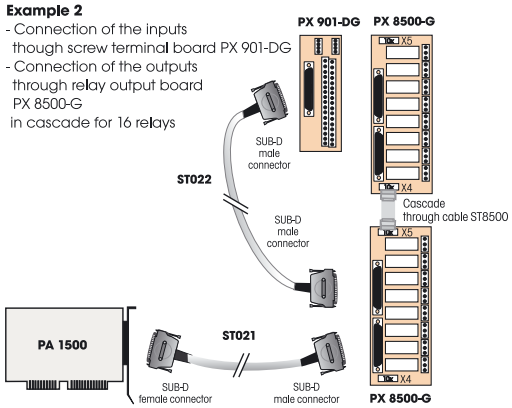


ADDI-DATA connection

Example 1
Connection of the inputs and outputs through screw terminals boards



Example 2
- Connection of the inputs though screw terminal board PX 901-DG
- Connection of the outputs through relay output board PX 8500-G in cascade for 16 relays



ORDERING INFORMATION

ADDINUM PA 1500

PA 1500: Digital I/O 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: Same as ST010, for high currents (24V supply separated)
ST021: Round cable between PA 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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