# Analog output board, isolated, 14-bit





# PA 3500

8/4 outputs, 14-bit

## Watchdog







LabWindows/CVI<sup>™</sup>

DIA*dem*\*

The 14-bit analog output board PA 3500 is an automation interface for analog controlling tasks. Trigger and interrupt functions allow the board to react and to act on external events in different ways. The 4 or 8 analog output channels can be set independently. The board is available in four versions with either voltage or current output channels, with voltage ranges of 0-10 V and  $\pm 10$  V and current ranges of 0-20 mA, 4-20 mA and 5-25 mA.

The analog conversion can be started in 3 programmable modes:

- Trigger function automatically with the output of an analog value
- Independent software trigger with the output of an analog value
- External trigger: the parameterised analog output is set through a signal switching from 5 to 0 V at trigger input.

The interrupt signals (IRQ3, 4, 5, 6, 7, 9, 10, 11, 12, 14, 15) can be generated through 4 selectable sources (trigger, input 1 or 2, watchdog). All configurations are programmable. A watchdog supervises the PC activity.

The output channels are reset in case of error.

Two 24 V input channels and a fast TTL trigger input channel allow a fast reaction to external events. A trigger signal allows the analog values to be set asynchronously to the program flow. The analog output can therefore be used in numerous controlling processes and be synchronised with different controlling signals.

# **Features**

- 8 or 4 analog outputs
- 14-bit resolution
- Setting time: 30 to 45 µs
- Output ranges: 0-10 V, ± 10 V, 0-20 mA, 4-20 mA, 5-25 mA
- Unipolar/bipolar programmable for each channel
- Programmable interrupt: IRQ 3, 4, 5, 6, 7, 9, 10, 11, 12, 14, 15
- 4 programmable modes:
- trigger, synchroning, interrupt and polling mode
- Addressing through DIP switches
- Small address range: max. 4 bytes

## Diaital

- Fast digital trigger input channel (optical couplers) for controlling one output channel
- 2 digital input channels and 2 digital output channels, 24V, isolated, 6 mA

**Optical isolation 500 V** 

Voltage or current outputs

**Trigger input** 

4 isolated digital I/O, 24 V

### Safety features

- Optical isolation 500 V
- Creeping distance IEC 61010-1 (VDE411-1)
- Watchdog function
- All analog outputs with EMI suppression filters
- Noise neutralization of the PC voltage supply

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

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

# **Applications**

- Industrial machine automation
- Motor
- Programmable voltage source
- Programmable current sink
- Electronic test

# 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 driver 2000/NT/98/95

### 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 Turbo Pascal 7.0

#### Drivers for the following application software: LabVIEW 5.01

# On request:

DiaDem 6/7 LabWindows/CVI 5.01 Delphi 4.0

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

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PA 3500

#### **Specifications** Simplified block diagram Analog outputs 16-pin male connector 2 dig. inputs and 2 dig. outputs Number of outputs: 8 or 4 Output type: voltage or current outputs Optical isolation: 500 V DC/DC converter . Output filter: FMI (Optical couplers) Resolution: Bipolar: 14-bit - Unipolar: 13-bit couplets Mode election 4 or 8 ana**l**og outputs 0-10 V, ±10 V D/A Output range: FMI converte Optional: 0-20 mA, 4-20 mA, 5-25 mA fical voltage range individually programmable Natchdoa for each channel, unipolar/bipolar switching Q. Trigger Buffers voltage outputs: typ. 30 µs Setting time: Ir rrupt (from -10 V to +10 V) 37-pin SUB-D male connector Data bus driver Address Option P: 32 µs (in steps of 20 V) ling 100.0.00 current outputs: typ. 45 µs (in steps of 20 mA) ISA bus Bipolar zero offset: ±16 LSB voltage outputs: 5 mA at 10 V Max. load: current outputs: 500 $\Omega$ at 20 mA Pin assignment – 37-pin SUB-D male connector Interrupt lines: IRQ 3, 4, 5, 6, 7, 9, 10, 11, 12, 14, 15, programmable Watchdog: Zeit: 4.2 s, software programmable IOUT7 (-IOUT6 (-) IOUT6 (-) IOUT5 (-) IOUT? Digital I/O IOUT6 (+ IOUT5 (+ Inputs: 1 trigger input, with optical couplers, 5 V, Fo IOUT4 (+ IOUT3 (c) IOUT2 (c) IOUT2 (c) IOUT1 (c) IOUT1 (c) IOUT1 (c) IOUT0 (c) An. GND 7 (c) An. GND 7 (c) An. GND 5 (c) An. GND 3 (c) An. GND 3 (c) An. GND 1 (c) An. GND 1 (c) IOUT3 (interruptible, 2 dig. inputs, 24 V, interruptible, IOUT3 (+ IOUT2 (+ inputs current 6 mA IOUT1 (+ Outputs: 2 digital outputs, open collector outputs, IOUTO (+ GND trigger 24 V ext An. output 7 An. output 6 An. output 5 An. output 4 5-24 V, typ. collector current 1-10 mA Noise immunity For - ESD: 4 kV Test level voltaae An. output 3 An. output 2 - Fields: 10 V/m outputs - Burst: 2 kV/4 kV Netz An. outp - Conducted radio interferences: 10 V **Physical and environmental conditions** Pin assignment - 16-pin male connector Dimensions: 160 x 99 mm System bus: ISA, AT slot Dig. input 0 GND Dig. input 0 1 Place required: 1 slot for the analog output, Dig. input 1 GND Dig. input 1 3 1 slot opening for the digital I/O, Trigger 5 🔳 🖬 6 Trigger GND with FB3000 Dig. output 0 7 🔳 🔳 8 Dig. output 0 GND +5 V, ±5 % from PC for version C, external 24 V Operating voltage: 9 = 10 Dig. output 1 GND Dig. output 1 Current consumption: 450 mA ± 5 % typ. 24 V ext. 11 = 12 Dig. GND Front connector: 37-pin SUB-D male connector 5 V 13 = 14 0 V ext. 16-pin male connector for ribbon cable FB3000 Not connected 15 = 16 Not connected for the digital I/O Temperature range: 0 to 60 °C (with forced cooling) **ADDI-DATA** connection PX 901-ZG ST010/ST011 FB30 Terminal board PX 901-AG Diaital I/C 000000 SUB-D SUB-D with cable ST010 901-AG ST010/ST011 PA 3500 SUB-D **ORDERING INFORMATION ADDIALOG PA 3500** Analog output board, isolated. Incl. technical description and software drivers. Versions

PA 3500-8: 8 analog voltage outputs PA 3500-4: 4 analog voltage outputs PA 3500-8C: 8 analog current outputs PA 3500-4C: 4 analog current outputs

# Connection:

PX 901-A: Screw terminal board with transorb diodes, for connecting the analog inputs

PX 901-AG:	Screw terminal board with housing
	for DIN rail for voltage outputs.
PX 901-ZG:	Screw terminal board for digital I/O
	with housing for DIN rail for current outputs.
ST010:	Standard round cable, shielded, twisted pairs, 2 m
ST011:	Standard round cable, shielded, twisted pairs, 5 m
FB3000:	16-pin to 37-pin SUB-D connector with bracket
	for digital I/O

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