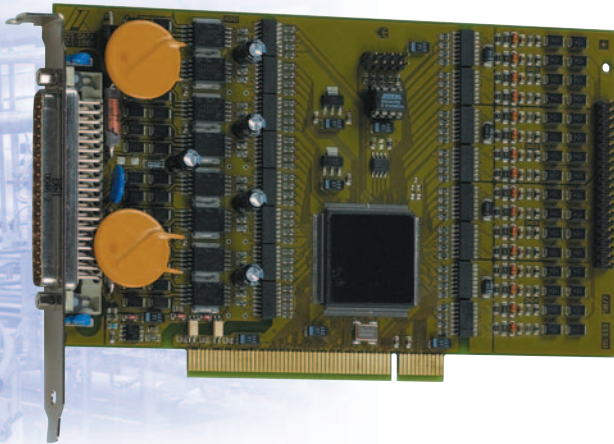


Digital input/output board, 64 isolated I/O, 24 V



LabVIEW™

LabWindows/CVI™

Features

- 32-bit, 33 MHz, PCI Interface

Inputs

- 32 isolated digital inputs, 24 V or version 5V (APCI-1564-5), incl. 16 interruptible and 3 counter inputs
- Inputs organised in 4 groups of 8 channels each group has its own ground line
- Protection against pole reversal
- All inputs are filtered

Outputs

- 32 isolated digital outputs, 10 to 36 V or 5 V (APCI-1564-5)
- Output current/channel 500 mA
- Watchdog for resetting the outputs to "0"
- After power-on the outputs are reset to "0"
- Total current for 16 outputs ~ 3 A
- Total current for 32 outputs ~ 6 A
- Electronic fuse
- Short-circuit current per output ~ 1.5 A
- Overtemperature and overvoltage protection
- 24 V power outputs with protection diodes and filters
- Special output capacitors against electromagnetic emissions
- External 24 V voltage supply screened through protection circuitry
- Shutdown 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
- Interrupt triggered through watchdog, timer
- Separate grounds for inputs and outputs channels

APCI-1564

**32 digital inputs, 24 V or 5 V,
incl. 16 interruptible, filtered**

**32 digital outputs, 24 V or 5 V,
500 mA/channel, filtered**

Optical isolation 1000 V

Watchdog, timer, counter

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

3 x 32-bit counter up to 500 kHz

EMC tested acc. to 89/336/EEC

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

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.
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 and Delphi 4.0 (except timer function)

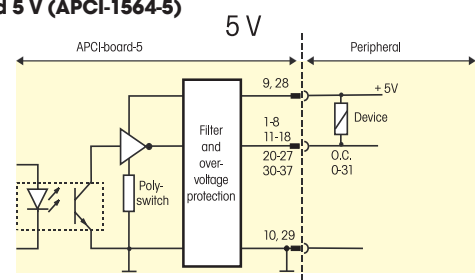
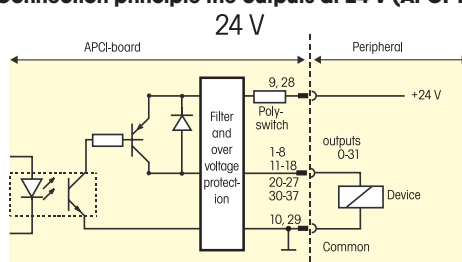
ADDIPACK functions supported:

Digital input • Digital output
Interrupt • Watchdog • Timer • counter

On request: RTX-driver

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

Connection principle the outputs at 24 V (APCI-1564) and 5 V (APCI-1564-5)



digital input/output board, 64 isolated I/O, 24 V



APCI-1564

Specifications

Digital inputs

Number of inputs:	32; 4 groups of channels with common ground: 0-7, 8-15, 16-23, 24-31 - 0-2: fast counter input channels, 500 kHz - 4-19: interruptible inputs	
Optical isolation:	through optical couplers, 1000 V	
Nominal voltage 24V (APCI-1564):	Digital inputs	Counter inputs
Input current at 24 V:	4 mA typ.	10.5 mA typ.
Logical input level:	U nominal: 24 V	24 V
UH max:	26 V/5 mA typ.	12.3 mA typ.
UH min.:	19 V/1.3 mA typ.	5.2 mA typ.
UL max.:	17 V/0.6 mA typ.	3.2 mA typ.
UL min.:	0 V/0 mA	0
Nominal voltage 5V (APCI-1564-5):	Digital inputs	Counter inputs
Input current at 5 V:	6 mA typ.	8.5 mA typ.
Logic input level:	U nominal: 5 V	5V
UH max:	6 V/8.4 mA typ.	6 V/11.3 mA typ.
UH min.:	3.3 V/3 mA typ.	3.3 V/3.7 mA typ.
UL max.:	2.7 V/1.9 mA typ.	2.7 V/2.1 mA typ.
UL min.:	0 V/0 mA	0
Signal delay:	70 µs	1 µs
Maximum input frequency:	5 kHz	500 kHz

Digital outputs

Number of outputs:	32, optically isolated to 1000 V	
Output type:	High-side (load at ground) acc. to IEC 1131-2	
Nominal voltage:	24 V (APCI-1564); or 5 V (APCI-1564-5)	
Supply voltage:	10 to 36 V, min. 5 V (through front connector)	
Max. current for 16/32 outputs:	3 A typ./6 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 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:	Pin 19: Status-bit or interrupt to the PC	
Timer:	12-bit	
Watchdog:	8-bit, timer-programmable from 20 ms to 5 s in steps of 20 ms	

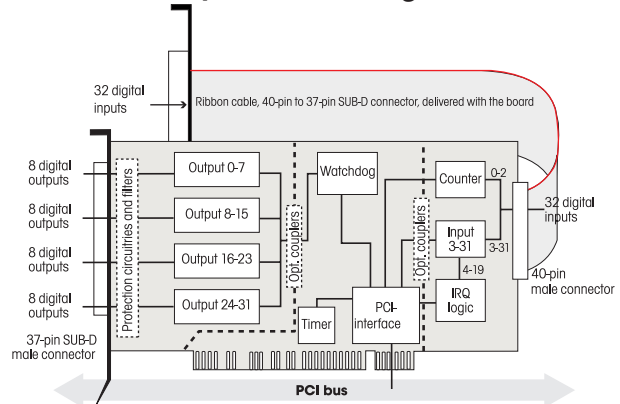
Noise immunity

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

Physical and environmental conditions

Dimensions:	171 x 99 mm
System bus:	PCI 32-bit 5 V acc. to specification 2.1 (PCISIG)
Space required:	1 PCI slot + 1 additional slot opening
Operating voltage:	+5 V, $\pm 5\%$ from PC
Current consumption:	395 mA ± 15 mA typ.
Front connector:	37-pin SUB-D male connector for 32 dig. outputs
additional Connector:	37-pin SUB-D male connector on separate bracket for 32 digital inputs
Temperature range:	0 to 60 °C (with forced cooling)

Simplified block diagram



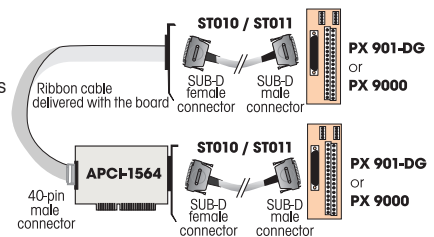
Pin assignment – 37-pin SUB-D male connector

Inputs	Outputs
Counter input 1 Dig. input 3 Dig. input 5 Dig. input 7 Dig. input 9 Dig. input 11 Dig. input 13 Dig. input 15 GND 1 GND 3 Dig. input 17 Dig. input 19 Dig. input 21 Dig. input 23 Dig. input 25 Dig. input 27 Dig. input 29 Dig. input 31	Counter input 0 Dig. input 2 Dig. input 4 Dig. input 6 Dig. input 8 Dig. input 10 Dig. input 12 Dig. input 14 GND 0 GND 2 Dig. input 16 Dig. input 18 Dig. input 20 Dig. input 22 Dig. input 24 Dig. input 26 Dig. input 28 Dig. input 30 Not connected
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37	20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

ADDI-DATA connection

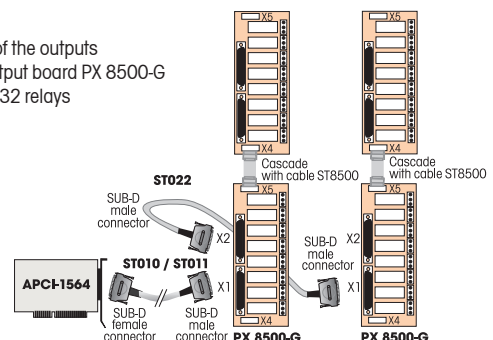
Example 1:

- Connection of the inputs (Ribbon cable)
 - Connection of the outputs through screw terminal board
- PX 901-DG or PX 9000



Example 2:

- Connection of the outputs with relay output board PX 8500-G cascaded in 32 relays



ORDERING INFORMATION

ADDINUM APCI-1564

APCI-1564: Digital input/output board, 64 isolated I/O, 24 V. Incl. ribbon cable, technical description and software drivers

APCI-1564-5V: Digital input/output board, 64 isolated I/O, 5 V. Incl. ribbon cable, technical description and software drivers

Connection

PX 901-D: Screw terminal board

PX 901-DG: Screw terminal board 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 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)

ST022: Between 2 relay output boards PX 8500-G

ST8500: Ribbon cable for cascading two PX 8500-G

www.addi-data.com

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

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