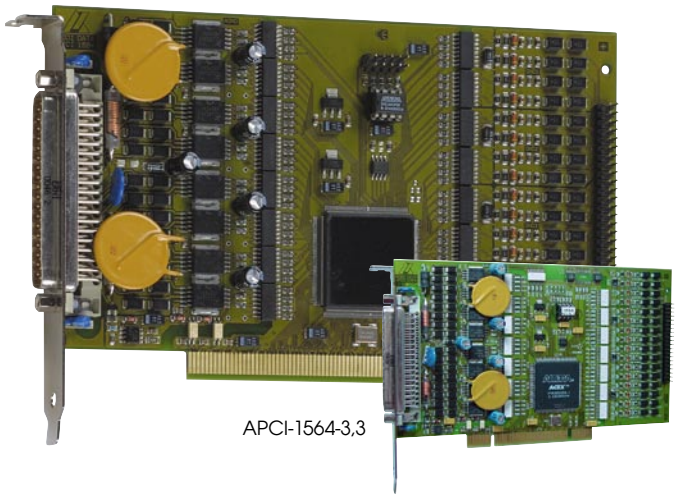
Digital I/O board, optically isolated, 64 digital inputs/outputs, 24 V / 5 V



APCI-1564-3,3

APCI-1564/APCI-1564-3,3/APCI-1564-5

PCI 5 V (APCI-1564, APCI-1564-5)
PCI 3.3 V (APCI-1564-3.3)

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, 3 x 32-bit counter up to 500 kHz

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

RoHS compliant

LabVIEW™

LabWindows/CVI™

Features

- 32-bit, 33 MHz, PCI Interface
- PCI 5 V (APCI-1564, APCI-1564-5)
- PCI 3.3 V (APCI-1564-3.3)

Inputs

- 32 isolated digital inputs, 24 V (APCI-1564, APCI-1564-3.3) or 5 V version (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/outputs channels

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 eletromechanical relays
- Automatic test equipment
- ON/OFF monitoring of motors, lights ...
- Watchdog timer • Machine interfacing
- ...

Software drivers

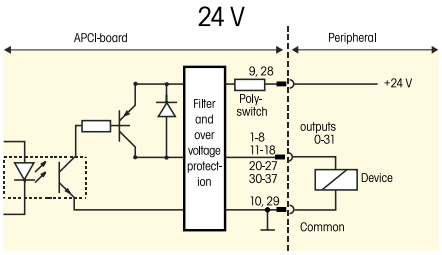
A CD-ROM with the following software and programming examples is supplied with the board.

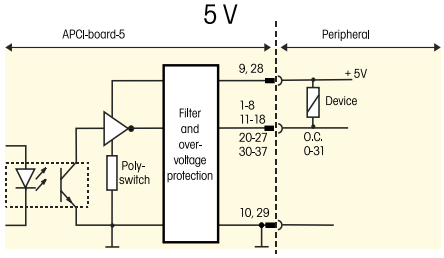
Standard drivers for:
Linux kernel version 2.4.2, Windows XP/2000/NT/98.
Real-time driver for Windows XP/2000/NT/98.
The board is supplied with the universal software **ADDIPACK**.
Drivers for the following application software:
LabVIEW 5.01 • LabWindows/CVI
Samples for the following compilers:
Microsoft 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

24 V outputs (APCI-1564, APCI-1564-3,3) and 5 V outputs(APCI-1564-5)





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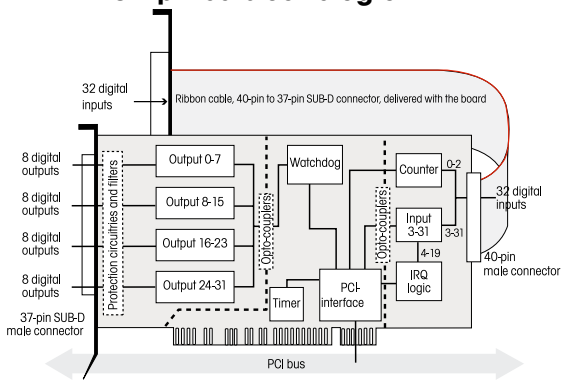
Digital I/O board, optically isolated, 64 digital inputs/outputs, 24 V / 5 V

Specifications

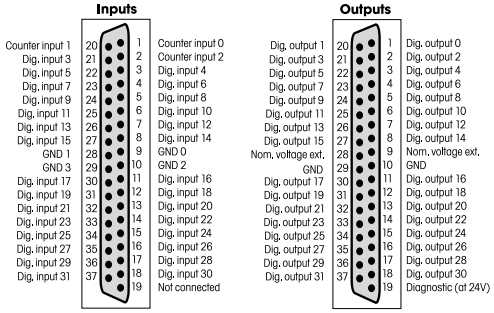
Digital inputs		
Number of inputs:	32; 4 groups of channels with common ground: -0-7, 8-15, 16-23, 24-31 - 0-2: fast counter input channels, 500 kHz - 4-19: interruptible inputs	
Optical isolation:	through opto-couplers, 1000 V	
Nominal voltage 24 V (APCI-1564, APCI-1564-3.3):	Digital inputs	Counter 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.:	14 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	5 V
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 up 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} < 0,1Ω:	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:	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 - Burst: 4 kV	- Fields: 10 V/m - 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, ± 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)	

APCI-1564 / APCI-1564-3,3 /APCI-1564-5

Simplified block diagram

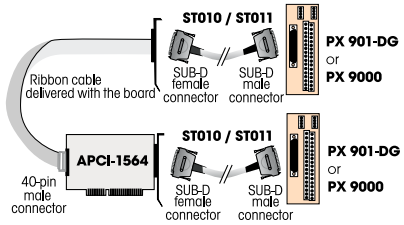


Pin assignment – 37-pin SUB-D male connector

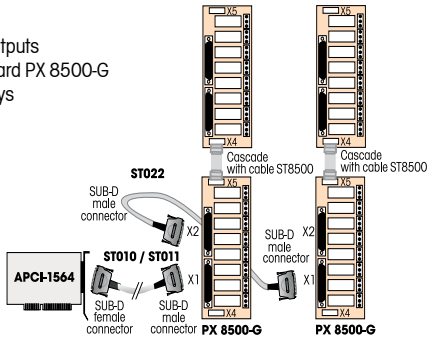


ADDI-DATA connection

Example 1:
- connection of the inputs (ribbon cable)
- connection of the outputs through screw terminal panel 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

APCI-1564: Digital I/O board, optically isolated, 64 digital inputs/outputs, 24 V. Incl. ribbon cable, technical description and software driver
APCI-1564-3,3: Same as APCI-1564, for PCI 3.3 V
APCI-1564-5: Digital I/O board, optically isolated, 64 digital inputs/outputs, 5 V. Incl. ribbon cable, technical description, software drivers

Connection

PX 901-D: screw terminal panel
PX 901-DG: screw terminal panel for DIN rail
PX 901-ZG: screw terminal panel for DIN rail (for APCI-1564-5)
PX 9000: 3-row screw terminal panel 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 (separate 24 V supply)
ST021: Between APCI-1564 and PX8500-G, shielded, twisted pairs, 2 m
ST022: Between 2 relay output boards PX 8500-G
ST8500: Ribbon cable for cascading two PX 8500-G