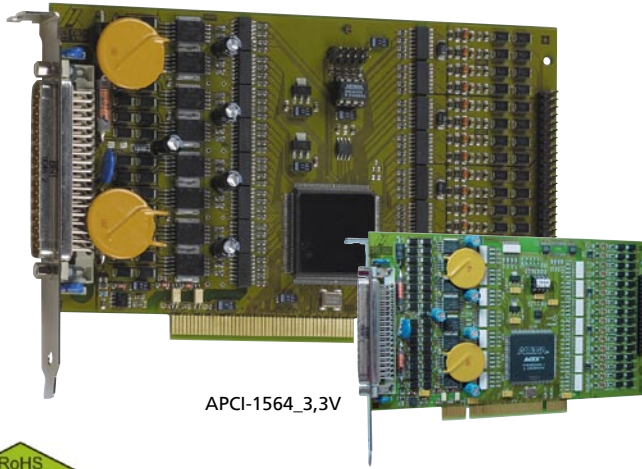


Digital I/O board, optically isolated, 64 digital inputs and outputs, 24 V



APCI-1564_3,3V



PCI 32-bit

Also for
PCI EXPRESS see
page 122



Signed 64-bit drivers
for Windows 7/Vista/XP



LabVIEW™



LabWindows/CVI™



APCI-1564 / APCI-1564_3,3V

PCI 5 V (APCI-1564)

PCI 3.3 V (APCI-1564_3,3V)

32 digital inputs, 24 V,
including 16 interruptible, filtered

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

Optical isolation 1000 V

Watchdog, timer,
3 x 32-bit counters up to 500 kHz

The outputs are reset to "0" at Power-On

Features

- 32-bit, 33 MHz, PCI interface
- PCI 5 V (APCI-1564)
- PCI 3.3 V (APCI-1564_3,3V)

Inputs

- 32 optically isolated digital inputs, 24 V, including 16 interruptible and 3 counter inputs
- Inputs organised in 4 groups of 8 channels, each group has its own ground line
- Reverse voltage protection
- All inputs are filtered

Outputs

- 32 optically isolated digital outputs, 10 V to 36 V
- Output current per channel 500 mA
- Watchdog for resetting the outputs to "0"
- At 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
- Output capacitors against electromagnetic emissions
- Ext. 24 V voltage supply screened and filtered
- Shutdown logic, when the external supply voltage drops below 5 V

Safety features

- Optical isolation 1000 V
- Creeping distance IEC 61010-1
- Protection against fast transients (burst), overvoltage, electrostatic discharge and high-frequency EMI

- Interrupt started through counter, timer
- Separate ground lines for inputs and outputs

Applications

- Industrial I/O control • PLC coupling • Signal switching
- Interface to electromechanical relays
- Automatic test equipment
- ON/OFF monitoring of motors, lights...
- Watchdog • Machine interfacing
- ...

Software drivers

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

Standard drivers for:

- Linux
- 32-bit drivers for Windows 8 / 7 / Vista / XP / 2000
- Signed 64-bit drivers for Windows 8 / 7 / XP
- Real-time use with Linux and Windows on request
- RTX drivers (real-time)

Drivers and samples for the following compilers and software packages:

- .NET
- Microsoft VC++ • Borland C++
- Visual Basic • Delphi
- LabVIEW • LabWindows/CVI

ADDIPACK functions:

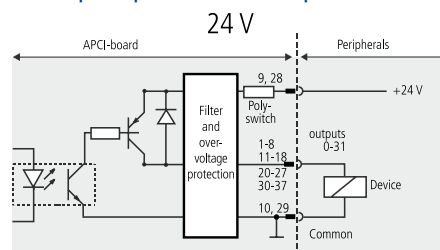
Digital input • Digital output
Watchdog • Timer • Counter

On request:

Further operating systems, compilers and samples.

Driver download: www.addi-data.com/downloads

Connection principle of the 24 V outputs



Specifications

Digital inputs

Number of inputs:	32; 4 groups of channels with common ground: Input: 0-7, 8-15, 16-23, 24-31 - 0-2: fast counter inputs, 500 kHz - 4-19: interruptible inputs	
Optical isolation:	Through opto-couplers, 1000 V	
	Channel 0-3	Channel 4-31
Input current at 24 V:	10.5 mA typ.	5 mA typ.
Logic input levels:		
U nominal	24 V	24 V
UH max.	26 V / 12.3 mA typ.	26 V / 5 mA typ.
UH min.	19 V / 5.5 mA typ.	19 V / 3.2 mA typ.
UL max.	14 V / 0.7 mA typ.	14 V / 1.3 mA typ.
UL min.	0 V / 0 mA typ.	0 V / 0 mA typ.
Signal delay:	1 µs	70 µs
Maximal input frequency:	500 kHz	5 kHz

Digital outputs

Number of outputs:	32, optically isolated up to 1000 V	
Output type:	High side (load to ground) acc. to IEC 1131-2	
Nominal voltage:	24 V	
Supply voltage:	10 V to 36 V	
Max. current for 16 / 32 outputs:	3 A typ./6 A typ.	
Output current/output:	500 mA max.	
Short-circuit current/output shutdown 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: 94 µs typ.	
Switch-off time:	I out=0.5 A, load = resistance: 8 µs typ.	
Overtemperature (shutdown):	170 °C (output driver)	
Temperature hysteresis:	20 °C (output driver)	

Safety

Shutdown logic:	When the ext. 24 V voltage drops below 5 V: The outputs are switched off.
Diagnostics:	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

EMC – Electromagnetic compatibility

The product complies with the European EMC directive. The tests were carried out by a certified EMC laboratory in accordance with the norm from the EN 61326 series (IEC 61326). The limit values as set out by the European EMC directive for an industrial environment are complied with. The respective EMC test report is available on request.

Physical and environmental conditions

Dimensions:	171 x 99 mm
System bus:	PCI 32-bit 5 V acc. to specification 2.1 (PCISIG) or 3.3 V
Space required:	1 PCI slot + 1 additional slot opening
Operating voltage:	+5 V, ± 5 % from the PC
Current consumption:	410 mA ± 10 % typ.
Front connector:	37-pin D-Sub male connector for 32 digital outputs
Additional connector:	37-pin D-Sub male connector on separate bracket for 32 digital inputs
Temperature range:	0 to 60 °C (with forced cooling)

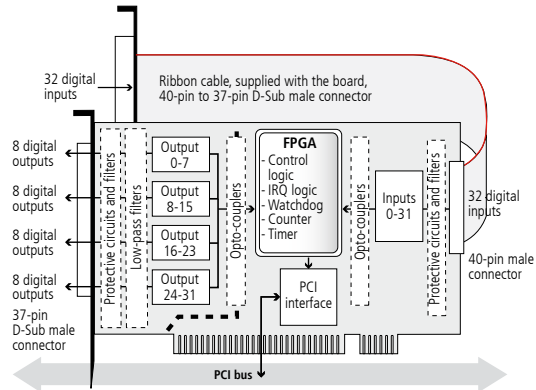
APCI-1564 / APCI-1564_3,3V

APCI-1564: Digital I/O board, optically isolated, 64 digital inputs and outputs, 24 V. Incl. ribbon cable, technical description, software drivers
APCI-1564_3,3V: Same as APCI-1564, for PCI 3.3 V

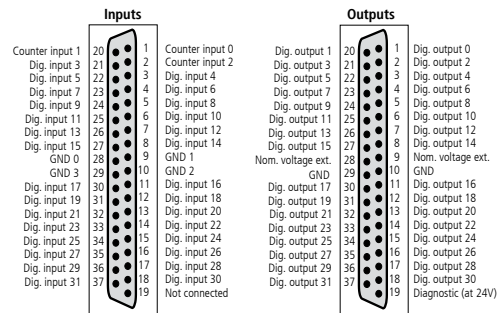
Accessories

PX901-D: Screw terminal panel
PX901-DG: Screw terminal panel for DIN rail
PX9000: 3-row screw terminal panel
PX8500-G: Relay output board for DIN rail, cascadable
ST010: Standard round cable, shielded, twisted pairs, 2 m

Simplified block diagram



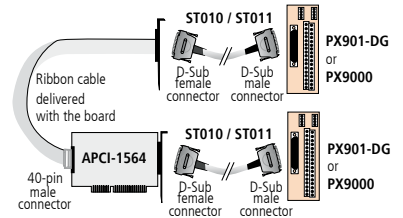
Pin assignment – 37-pin D-Sub male connector



ADDI-DATA connection

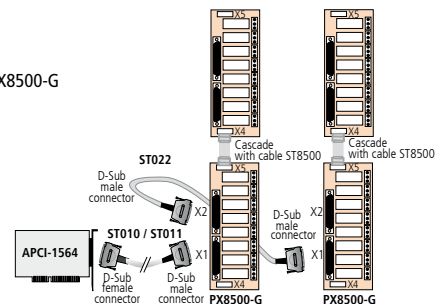
Example 1:

- Connection of the inputs (Ribbon cable)
- Connection of the outputs through screw terminal panel PX901-DG or PX9000



Example 2:

- Connection of the outputs with relay output board PX8500-G cascaded in 32 relays



Ordering information

ST011: Standard round cable, shielded, twisted pairs, 5 m
ST010-S: Same as ST010, for high currents (24 V supply separate)
ST022: Between 2 relay output boards PX8500-G
ST8500: Ribbon cable for cascading two PX8500-G