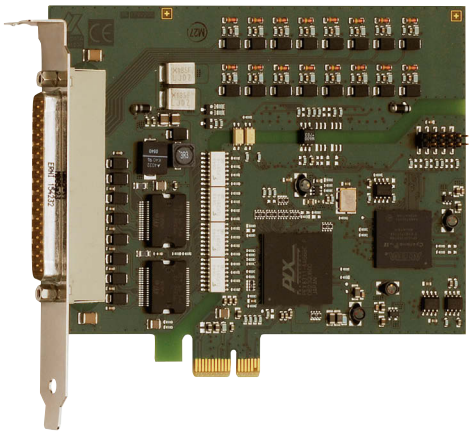
Digital I/O board, optically isolated, 32 digital inputs and outputs, 12 V, for PCI Express

New!* 12 V version



APCIe-1532-12V

PCI Express interface

16 digital inputs, 12 V, including 15 interruptible inputs

16 digital outputs, 24 V, 500 mA/channel

Optical isolation 1000 V

Input and output filters

Connection through industry-standard D-Sub connector

RoHS 2002/95/EC

Windows 64/32-bit drivers

LabVIEW™

LabWindows/CVI™

Features

Inputs

- 16 optically isolated inputs, 12 V incl. 15 interruptible inputs
- Channel 0 can be used as a 16-bit counter input (up to 100 kHz)
- Reverse voltage protection
- All inputs are filtered

Outputs

- 16 optically isolated outputs, 11 to 36 V
- Output current per channel 500 mA
- Total current: 3 A typ. (fused through PTC resistor)
- Watchdog for resetting the outputs to "0"
- At Power-On, reset of the outputs to "0"
- Current limit: ~1.5 A per 8 channels (through PTC)
- Short-circuit current per output ~1.5 A typ.
- Self-resetting fuse (electronic fuse)
- Overtemperature and overvoltage protection
- 24 V power outputs with protection diodes and filters
- Ext. 24 V voltage supply screened and filtered
- Shutdown logic, when the external supply voltage drops below 7 V

Timer / Counter

- 2 timers (12-bit resolution)
- 1 timer can be used as watchdog
- 1 counter

Safety features

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

Applications

- Industrial I/O control
- PLC coupling
- Reading of encoder values for process control
- Signal switching
- Interface to electromechanical relays
- ON/OFF monitoring of motors, lights...
- Watchdog timer
- Interface to machines

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

Drivers and samples for the following compilers and software packages:

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

ADDIPACK functions:

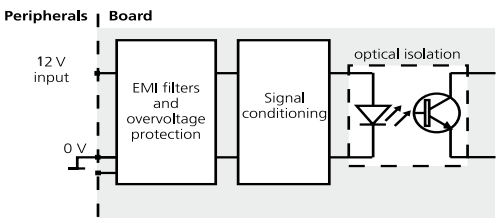
- Digital input • Digital output • Watchdog
- Timer • Counter

On request:

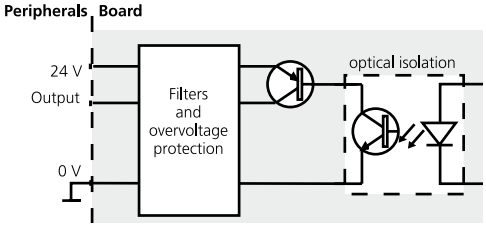
Further operating systems, compilers and samples.

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

Protective circuit for the input channels



Protective circuit for the output channels



*Preliminary product information

Phone: +49 7229 1847-0 info@addi-data.com
Fax: +49 7229 1847-222 www.addi-data.com

ADDI-DATA® SPIRIT OF EXCELLENCE

Specifications*

Digital inputs

Number of inputs:	16 digital inputs,
(common ground	channel 0 can be used as a 16-bit counter input
acc. to IEC 1131-2)	(up to 100 kHz)
Interruptible inputs:	15 channels (channel 1 to 15)
Optical isolation:	1000 V through opto-couplers, from PC to peripheral
Nominal voltage:	12 V
Input current:	**at 12 V**
Channel 0 or 0-1:	3.2 mA typ.
Channel 1-15 or 2-16:	1.5 mA typ.
Input frequency (max.):	**at 12 V**
Channel 0 or 0-1:	100 kHz
Channel 1-15 or 2-16:	5 kHz
Logic input levels:	**at 12 V**
UH (max.):	16 V
UH (min.):	9 V
UL (max.):	6 V
UL (min.):	0 V
Filters/protective circuit:	Input filters, transil diode, RC filters, Z diode, opto-couplers

Digital outputs

Number of outputs:	16 digital outputs
Output type:	High-side (load to ground) acc. to IEC 1131-2
Optical isolation:	1000 V (through opto-couplers), from PC to peripheral
Nominal voltage:	24 V
Supply voltage range:	11 to 36 V
Current limit:	1.5 A per 8 channels (through PTC)
Output current per output:	500 mA (typical)
Short-circuit current per output:	1.5 A (typ.) pulse current shutdown at 24 V, R_{load}<0.1 Ω
RDS ON resistance:	max. 0.2 Ω at 25 °C
Switch-on time:	I_{out}=0.5 A, load = resistance: 50 µs
Switch-off time:	I_{out}=0.5 A, load = resistance: 75 µs
Overtemperature (shutdown):	135 °C (output driver)
Temperature hysteresis:	15 °C (output driver)

Timer/watchdog

Timer:	2 x 12-bit timers, 1 up to 4095 µs, ms, s 1 timer can be used as watchdog.

Safety

Shutdown logic (V_{CC} diagnostic):	When the ext. 24 V voltage drops below 7 V: The outputs are switched off.
Watchdog:	For resetting the outputs to "0"
Common diagnostics:	For all 16 channels at overtemperature of one channel

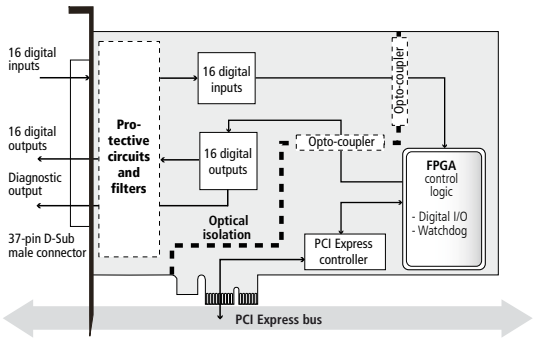
EMC – Electromagnetic compatibility

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.

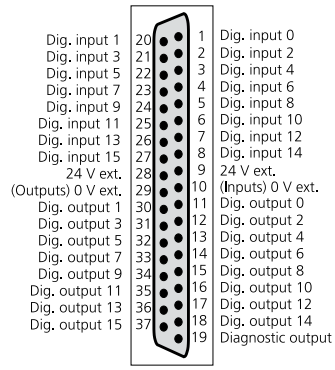
Physical and environmental conditions

Dimensions:	149 x 99 mm
System bus:	Acc. to PCI Express base specification, Revision 1.0a (PCI Express 1.0a)
Space required:	1-/4-/8-/16-lane PCI Express slot
Operating voltage:	+ 3.3 V from PC
Current consumption:	Inputs and outputs inactive 320 mA ± 10 %, typical 8 inputs and outputs active 400 mA ± 10 %, typical 16 inputs and outputs active 470 mA ± 10 %, typical
Front connector:	37-pin D-Sub male connector
Temperature range:	0 to 60 °C (with forced cooling)

Simplified block diagram

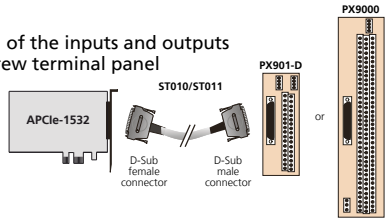


Pin assignment – 37-pin D-Sub male connector



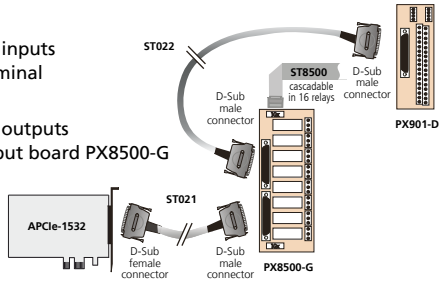
ADDI-DATA connection

Example 1
Connection of the inputs and outputs through screw terminal panel



Example 2
Connection of the inputs through screw terminal panel PX901-DG

Connection of the outputs through relay output board PX8500-G



Ordering information

APCIe-1532-12V

Digital I/O board, optically isolated, 32 digital inputs and outputs, 12 V, for PCI Express. Incl. technical description and software drivers.

APCIe-1532-12V: 16 inputs, 12 V, 16 outputs, 11-36 V, 1 counter

Accessories

PX901-D: Screw terminal panel, LED status display
PX901-DG: Screw terminal panel, LED status display, for DIN rail
PX9000: 3-row screw terminal panel for DIN rail, with LED status display
PX8500-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
ST021: Round cable between APCIe-1532 and PX8500-G, shielded, twisted pairs, 2 m
ST022: Round cable between PX8500-G and PX901 or PX9000, shielded, 2 m
ST8500: Ribbon cable for cascading two PX8500-G

* Preliminary product information

Phone: +49 7229 1847-0 info@addi-data.com
Fax: +49 7229 1847-222 www.addi-data.com