# Digital output board, optically isolated, 32 digital outputs, 5 V, for PCI Express





## PCI >> express









LabVIEW™



LabWindows/CVI™



\* Preliminary product information

#### Features

- Connector and software compatible to the digital output board APCI-2023 for the PCI bus.
- 32 digital outputs, 5 V version, optically isolated
- Output current per channel: 500 mA
- Voltage range: 10 V to 36 V
- Diagnostic report, through status register at shortcircuits, overtemperature, voltage drop or watchdog
- Programmable watchdog for resetting the outputs to "0", function release through software
- Interrupt triggered through error
- At Power-On the outputs are reset to "0"

#### Safety features

- Optical isolation 1000 V
- Creeping distance IEC 61010-1
- Protection against fast transients (burst), overvoltage, electrostatic discharge and high-frequency EMI
- Maximum output current for 32 outputs 6 A typ. (2 x 3 A)
- 24 V power outputs with protection diodes and filters
- Self-resetting fuse (electronic fuse)
- Short-circuit current per output 1.5 A typ.
- Output capacitors against electromagnetic emissions
- Fast demagnetisation in case of inductive loads
- External 24 V voltage supply screened and filtered
- Shutdown logic: If the external 24 V voltage drops below 5 V, then the outputs are switched off.

#### APCIe-2032-5

**PCI Express interface** 

32 digital outputs, 5 V,

500 mA/channel

Optical isolation 1000 V

Output filters, short-circuit protection

Watchdog

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

#### **Applications**

- 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 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 DIAdem

#### ADDIPACK functions:

Digital output • Watchdog

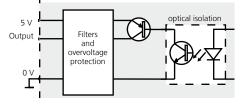
#### On request:

Further operating systems, compilers and samples.

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

#### Protective circuit for the 5 V output channels

#### Peripherals Board





Protective c



Digital outputs		
Outputs:	32	
Output type:	High-side (load to ground) acc. to IEC 1131-2	
Optical isolation:	through opto-couplers, 1000 V	
	from PC to peripheral	
Nominal voltage:	5 V	
Supply voltage:	for 5 V version: 5 V to 12 V via front connector	
Max. current for 32 outputs:	6 A typ. (2x3 A)	
Output current:	500 mA max./channel	
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=50 mA, load = resistance: 250 µs typ.		
Switch-off time: I ou	t=50 mA, load = resistance: 3 μs typ.	
Overtemperature (shutdown):	170 °C (output driver)	
Temperature hysteresis:	20 °C (output driver)	
Safety		

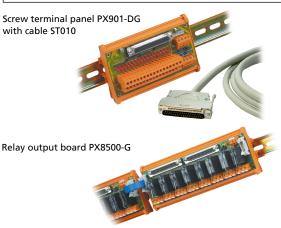
Shutdown logic (V <sub>CC</sub> diagnostic):	If the ext. 24 V voltage drops below 5 V, then the outputs are switched off.
CC-Diagnostics (short circuit):	Pin 19: status bit or interrupt to the PC
Watchdog:	8-bit, programmable, 20 ms up to 5 s in steps of 20 ms

#### 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.

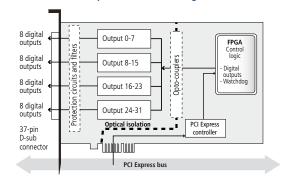
### Physical and environmental conditions

168 x 99 mm
Acc. to PCI Express base specification,
Revision 1.0a (PCI Express 1.0a)
1-/4-/8-/16-lane PCI Express slot
+ 3.3 V from PC
230 mA ± 10 % typ.
37-pin D-Sub male connector
0 to 60 °C (with forced cooling)

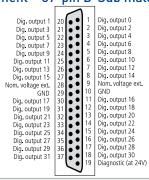


#### Simplified block diagram

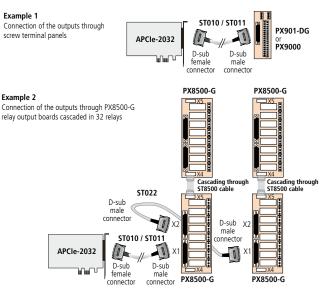
PCI >>



#### Pin assignment – 37-pin D-Sub male connector



#### **ADDI-DATA** connection



#### **Ordering information**

#### APCIe-2032-5

PX9000:

APCI-2032-5: Digital output board, optically isolated, 32 digital outputs, 5 V. Incl. technical description and software drivers

Accessories		
PX901-D:	Screw terminal panel, LED status display	
PX901-DG	Same as PX901-D, for DIN rail	
PX 901-ZG	: Screw terminal panel	

PX8500-G: Relay output board

Screw terminal panel, LED status displayST010:: Same as PX901-D, for DIN railST011:: Screw terminal panelST010-S:3-row screw terminal panelST010-S:for DIN rail, LED status displayST022:Relay output board for DIN rail, cascadableST8500:	Standard round cable, shielded, twisted pairs, 2 m Standard round cable, shielded, twisted pairs, 5 m Same as ST010, for high currents (24 V supply separate) Round cable between two PX8500-G, shielded, 2 m Ribbon cable for cascading two PX8500-G
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