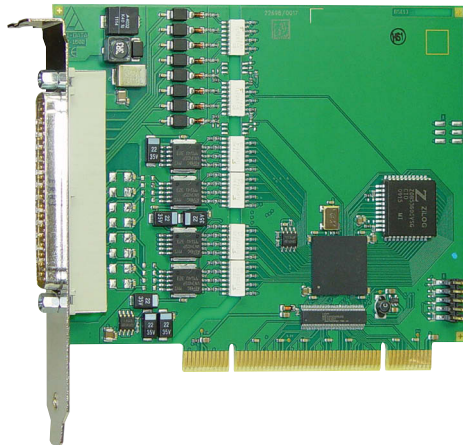# Digital output board, optically isolated, 16 digital outputs, 24 V

APCI-2016

16 digital outputs, 24 V, 500 mA/channel

Optical isolation 1000 V

Output filter, short-circuit protection

Watchdog

The outputs are reset to "0"

at Power-On

Features

- 16 optically isolated digital outputs, 10 V to 36 V
- Output current per channel 500 mA
- Watchdog for resetting the outputs to "0"
- One ground line for all outputs
- 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
- Short-circuit current for 16 outputs ~ 3 A typ.
- 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
- Output capacitors against electromagnetic emissions
- External 24 V voltage supply screened and filtered
- Shutdown logic, when the external supply voltage drops below 5 V
- Diagnostic function for detecting short-circuits and overtemperature

Applications

- Control of industrial PC-based processes
- 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
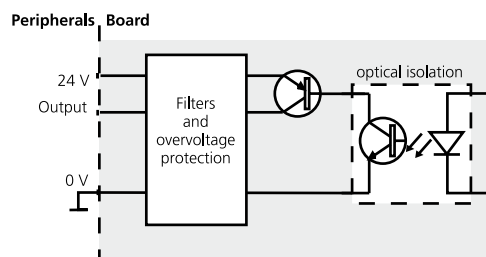
ADDIPACK functions:
Digital output • Watchdog

On request:
Further operating systems, compilers and samples.

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

Protective circuit for the output channels

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 outputs

Number of outputs:	16
Optical isolation:	Through opto-couplers, 1000 V from PC to peripheral
Output type:	High-side (load to ground) acc. to IEC 1131-2
Nominal voltage:	24 V
Supply voltage:	10 V to 36 V, min. 5 V (via front connector)
Max. current for 16 outputs:	3 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: 100 µs
Switch-off time:	I out=0.5 A, load = resistance: 60 µs
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.
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.
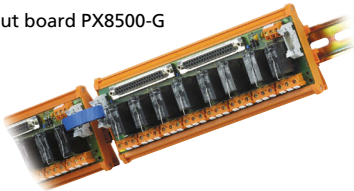
Physical and environmental conditions

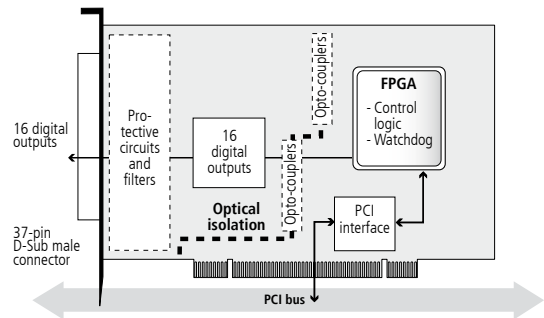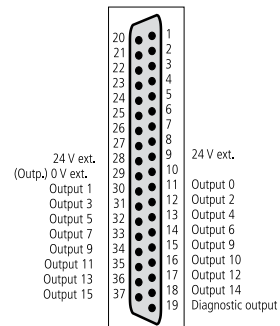|	
Dimensions:	131 x 99 mm
System bus:	PCI 32-bit 3.3/5 V acc. to specification 2.1 (PCISIG)
Space required:	1 PCI slot
Operating voltage:	+5 V, ± 5 % from the PC
Current consumption:	233 mA ± 10 % typ.
Front connector:	37-pin D-Sub male connector
Temperature range:	0 to 60 °C (with forced cooling)

Screw terminal panel PX901-DG
with cable ST010

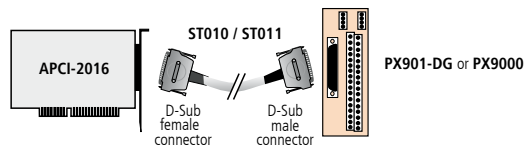Relay output board PX8500-G

Simplified block diagram

Pin assignment – 37-pin D-Sub male connector
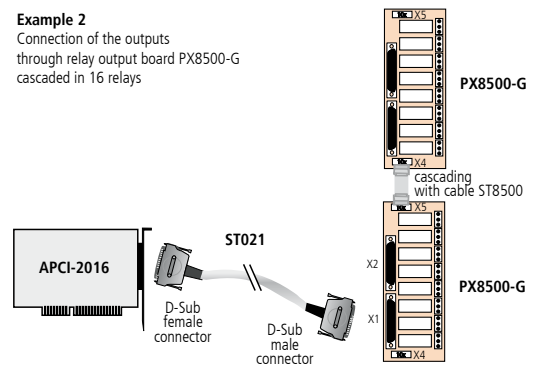

ADDI-DATA connection

Example 1
Connection of the outputs through screw terminal panels

Example 2
Connection of the outputs through relay output board PX8500-G cascaded in 16 relays

Ordering information

APCI-2016

Digital output board, optically isolated, 16 digital outputs, 24 V. Incl. technical description and software drivers

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, 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 (separate 24 V supply)
ST021:	Round cable between APCI-2016 and PX8500-G, shielded, twisted pairs, 2 m
ST8500:	Ribbon cable for cascading two PX8500-G