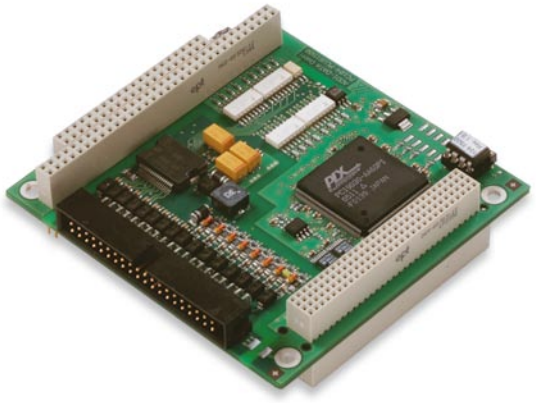
Digital I/O board, optically isolated, 32 digital inputs and outputs, 24 V, for PC/104-Plus



PC104-PLUS1500

16 digital inputs, 24 V, including 2 interruptible inputs

16 digital outputs, 24 V, 150 mA/channel

Optical isolation 1000 V

Input and output filters

Watchdog, timer, counter

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

RoHS 2002/95/EC

EMBEDDED-PC PC/104-PLUS MODULES

LabVIEW™

LabWindows/CVI™

Features

- 2 programmable timers

Inputs

- 16 optically isolated digital inputs, 24 V, including 2 interruptible inputs
- Reverse voltage protection
- All inputs are filtered

Outputs

- 16 optically isolated digital outputs, 11 V to 36 V
- Output current per channel 150 mA
- Timer-programmable watchdog for resetting the outputs to "0"
- Diagnostic report through status register at short-circuits, overtemperature, voltage drop or watchdog
- Interrupt triggered through watchdog, timer, error
- At Power-On, the outputs are reset to "0"
- Short-circuit current for 16 outputs ~ 2 A typ.
- Short-circuit current per output ~1.1 A peak
- Self-resetting fuse (electronic fuse)
- 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 under 7 V

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
- Signal switching
- Interface to electromechanical relays
- Automatic test equipment
- ON/OFF monitoring of motors, lights...
- ...

Software drivers

A CD-ROM with the following software and programming samples is supplied with the board.
Free driver download on the web at www.addi-data.com.

Standard drivers for:

Linux Kernel version 2.4.22 to 2.6.30,
Windows Vista (32-bit)/XP/2000. Windows 7 on request.
Real-time drivers for Windows Vista (32-bit)/XP/2000.
The board is supplied with the universal driver software **ADDIPACK** for an easy function management.

Drivers for the following software packages:

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)
.NET on request
LabVIEW from version 5.01 on request

Supported ADDIPACK functions:

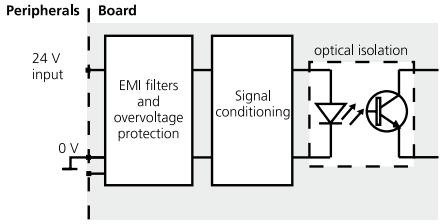
Digital input • Digital output
Interrupt • Watchdog • Timer • Counter

On request:

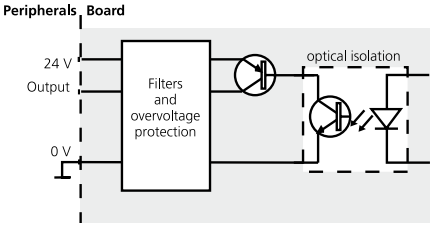
RTX drivers

Current driver list on the web: www.addi-data.com

Protective circuit for the input channels



Protective circuit for the output channels



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SPIRIT OF EXCELLENCE

Digital I/O board, optically isolated, 32 digital inputs and outputs, 24 V, for PC/104-Plus

Specifications

Digital inputs

Number of inputs:	16 (common ground acc. to IEC 1131-2) including one input used as a counter input (channel 0)
Interruptible inputs:	2 (channel 2 and 3)
Optical isolation:	through opto-couplers, 1000 V, from PC to peripheral
Interrupt compare logic:	OR mode (with fixed filter times)
Filters for interruptible inputs:	40 µs
Nominal voltage:	24 V
Input current at 24 V:	Channel 0: 6 mA typ. Channel 1-15: 3.9 mA typ.
Logic input levels:	U nominal: 24 V
UH max.:	30 V/current 6 mA typ.
UH min.:	19 V/current 2 mA typ.
UL max.:	14 V/current 0.7 mA typ.
UL min.:	0 V/current 0 mA typ.
Maximal input frequency:	Channel 0: 100 KHz (at 24 V) Channel 1-15: 5 KHz (at 24 V)

Digital outputs

Number of outputs:	16, optically isolated up to 1000 V through opto-couplers
Output type:	High-side (load to ground) acc. to IEC 1131-2
Nominal voltage:	24 V
Supply voltage:	11 V up to 36 V
Current limit:	1.5 A typ. per 8 channels
Output current/output:	150 mA typ.
Short-circuit current/output shutdown at 24 V, R_{load} < 0.1Ω:	1.1 A (typ.) pulse current
RDS ON resistance:	0.2 Ω at 25 °C max.
Switch-on time (typ.):	50 µs
Switch-off time (typ.):	75 µs
Overtemperature (shutdown):	135 °C (output driver)
Temperature hysteresis:	10 °C (output driver)

Safety

Shutdown logic:	When the ext. 24 V voltage drops below 7 V: The outputs are switched off.
Diagnostics:	Status bit or interrupt to the PC
Timer1/Watchdog:	1, 12-bit, time bases µs, ms, s
Timer2:	1, 12-bit, time bases µs, ms, s
Counter:	1, 16-bit, signal channel 0, Limit frequency 100 KHz

EMC – Electromagnetic compatibility

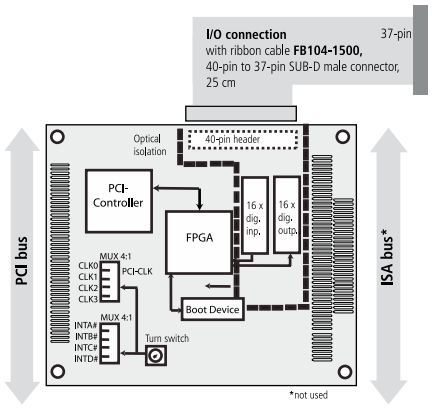
The product complies with the European EMC directive. The tests were carried out by a certified EMC laboratory in accordance with the norm from the EN 61326 series (IEC 61326). The limit values as set out by the European EMC directive for an industrial environment are complied with. The respective EMC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

Physical and environmental conditions

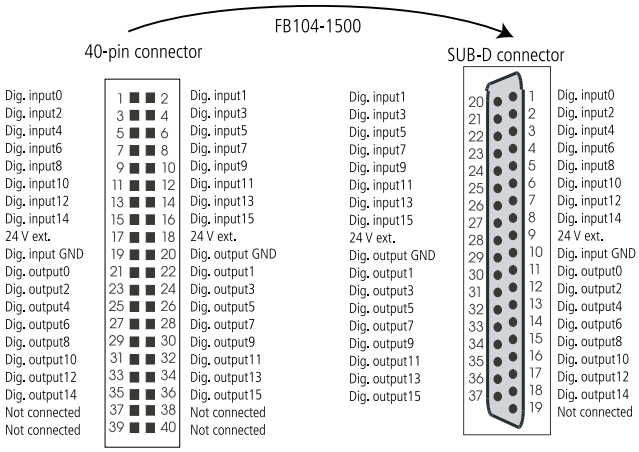
Dimensions:	90 x 96 mm
System bus:	PCI 32-bit 5 V acc. to specification 2.1 (PCISIG)
Mounting in:	PC/104-Plus system
Operating voltage:	+5 V or +3.3 V, ± 5 % from the PC
Current consumption:	
+ 3.3 V from PC	95 mA
+ 5 V from the PC	45 mA
I/O-connector:	40-pin male connector (2-row, 2.54 mm grid)
Temperature range:	0 to 60 °C (with forced cooling)

PC104-PLUS1500

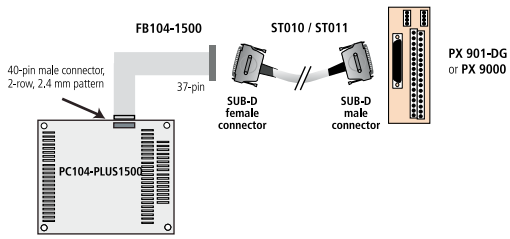
Simplified block diagram



Pin assignment – 40-pin to to 37-pin male connector



ADDI-DATA connection



Ordering information

PC104-PLUS1500

Digital I/O board, optically isolated, 32 digital inputs and outputs, 24 V, for a PC/104-Plus system.
Incl. technical description and software drivers.

Accessories

FB104-1500: Ribbon cable, 40-pin to 37-pin SUB-D male connector, 25 cm
PX 901-D: Screw terminal panel, LED status display
PX 901-DG: Screw terminal panel, LED status display, for DIN rail
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 (24 V supply separate)
ST021: Round cable between FB104-1500 and PX 8500-G, shielded, twisted pairs, 2 m
ST022: Round cable between PX 8500-G and PX 901-DG, shielded, 2m
ST8500: Ribbon cable for cascading two PX 8500-G

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