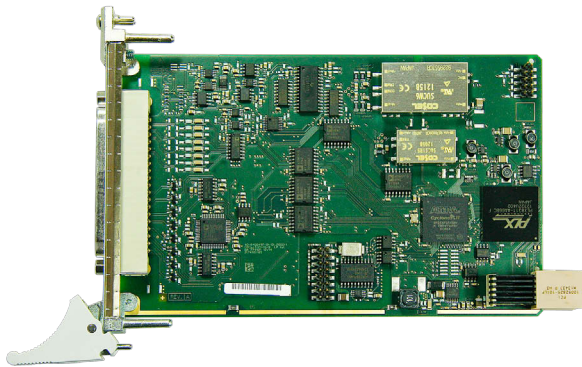


Multifunction board, optically isolated, 16 SE / 8 differential inputs, 4/8 analog outputs, 16-bit



CPCIs-3121

CompactPCI Serial interface

16 single-ended / 8 differential inputs, 16-bit

8/4 analog outputs, 16-bit

Optical isolation of inputs and outputs, 500 V

PCI-Express DMA, programmable gain

Trigger functions

8 digital I/O, 24 V, isolated, timer, watchdog

Extended temperature range -40 °C to +85 °C

Features

Analog inputs

- 16 single-ended / 8 differential inputs
- 16-bit resolution
- Optical isolation 500 V
- Throughput: 100 kHz
- Input ranges: 0-10 V, ± 10 V, 0-5 V, ± 5 V, 0-2 V, ± 2 V, 0-1 V, ± 1 V, 0-20 mA (option) freely programmable through software for each channel
- Gain PGA x1, x2, x5, x10 freely programmable through software for each channel
- DMA for analog data acquisition
- Overvoltage protection
- Input filters: 159 kHz

Analog acquisition

- One single channel, several channels, several channels through scan list
- Automatic analog acquisition through cyclic timer control
- Acquisition through scan list: up to 16 entries with gain, channel, unipolar/bipolar
- Acquisition triggered through software, timer, external event
- Trigger functions:
Software trigger or external trigger: the analog acquisition (single or sequence) is started through signal switching from 0 V to 24 V at the digital input 0.
- Interrupt: end of single channel, end of multichannel, end of scan list

Analog outputs

- 4 or 8 analog outputs, optically isolated 500 V
- Voltage or current outputs
- 16-bit resolution (15-bit for 0-10 V)
- Output voltage: ± 10 V, 0-10 V (through software)
- Output voltage after reset: 0 V
- Each output has its own ground line (without optical isolation)
- Output current ± 5 mA max. for voltage outputs
- Current outputs: 0-20 mA, min. load 10 Ω , max. load 560 Ω , at 20 mA
- EMI filters

Digital

- 4 digital inputs including 1 interruptible input
- 4 digital outputs, 24 V, optically isolated

Timer

- 2 timers, incl. 1 which can be used as a watchdog

Safety features

- Optical isolation 500 V min.
- Creeping distance IEC 61010-1
- Overvoltage protection ± 40 V, analog inputs
- Protection against high-frequency EMI
- Input filters: 159 kHz
- Noise neutralisation of the PC supply

Applications

- Industrial process control
- Industrial measurement and monitoring
- Multichannel data acquisition
- Control of chemical processes
- Factory automation
- Acquisition of sensor data, current measurement
- Laboratory equipment, instrumentation

Software drivers

Standard drivers for:

- Linux
- 32-bit drivers for Windows 11 / 10 / 8 / 7 / Vista / XP / 2000
- Signed 64-bit drivers for Windows 11 / 10 / 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

- Analog input • Analog output • Digital input
- Digital output • Watchdog • Timer

On request:

Further operating systems, compilers and samples.

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



Also for **PCI EXPRESS**
See APCIe-3121

Also for **PCI**
see APCI-3120

Also for **CompactPCI™**
see CPCI-3120



Windows
64/32-bit drivers



on request



LabVIEW™



LabWindows/CVI™

Specifications*

Analog inputs

Number of inputs:	16 single-ended / 8 differential inputs or 8 single-ended / 4 differential inputs
Resolution:	16-bit
Optical isolation:	500 V through opto-couplers from PC to peripheral
Input ranges:	software-programmable for each channel 0-10 V, ±10 V, 0-5 V, ± 5 V, 0-2 V, ± 2 V, 0-1 V, ± 1 V, (0-20 mA optional), freely programmable through software for each channel
Throughput:	100 kHz
Gain:	Software programmable (x1, x2, x5, x10)
Relative precision (INL):	± 2 LSB max. (A/D converter)
Diff. non-linearity (DNL):	± 1 LSB max. (A/D converter)
Bandwidth (-3 dB):	Limited to 159 kHz with low-pass filter
Trigger:	Through software, timer, external event (24 V input)
Data transfer:	Data to the PC through FIFO memory, I/O commands, interrupt at EOC (End Of Conversion) and EOS (End Of Sequence), DMA transfer at EOC
Interrupts:	End of conversion, at timer overrun, End of sequence

Analog outputs

Number of outputs:	8 or 4
Resolution:	16-bit
Optical isolation:	500 V through opto-couplers
Output range:	0-10 V, ± 10 V switchable through software (0-20 mA optional)
Overvoltage protection:	± 15 V
Max. output current / load:	± 5 mA, 2 kΩ
Short-circuit current:	± 35 mA (short time)
Output voltage after reset:	0 V

Digital I/O

Number of I/O channels:	4 digital inputs, 4 digital high-side outputs, 24 V
Optical isolation:	1000 V through opto-couplers
Input current at 24 V:	10 mA typ.
Input range:	0-30 V
Supply voltage:	8-32 V
Max. switching current:	65 mA typ.

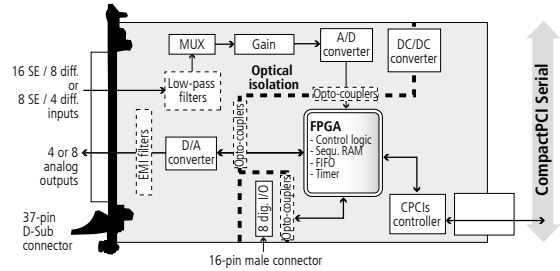
EMC – Electromagnetic compatibility

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:	160 x 100 mm
System bus:	PICMG CPCI-S.0 R1.0
Space required:	1 x CompactPCI slot for analog I/O 1 x slot opening for digital I/O with FB3001
Operating voltage:	+12 V, ± 5 %
Current consumption:	201 mA, ± 10 %
Front connector:	37-pin D-Sub male connector
Temperature range:	-40 °C to +85 °C
MTBF:	in preparation

Simplified block diagram



Pin assignment – 37-pin D-Sub male connector

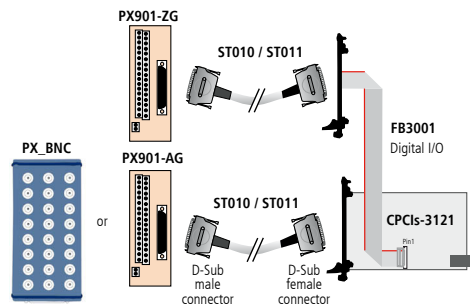
DIFF	SE	Pin	SE	DIFF
(+) An. input 0	(+) An. input 0	20	(+) An. input 8	(+) An. input 4
(+) An. input 1	(+) An. input 1	21	(+) An. input 9	(+) An. input 5
(+) An. input 2	(+) An. input 2	22	(+) An. input 10	(+) An. input 6
(+) An. input 3	(+) An. input 3	23	(+) An. input 11	(+) An. input 7
(-) An. input 3	(+) An. input 7	24	(+) An. input 15	(-) An. input 7
(-) An. input 2	(+) An. input 6	25	(+) An. input 14	(-) An. input 6
(-) An. input 1	(+) An. input 5	26	(+) An. input 13	(-) An. input 5
(-) An. input 0	(+) An. input 4	27	(+) An. input 12	(-) An. input 4
Analog input GND		28	Analog input GND	
Analog input GND		29	Analog input GND	
An. output 0 GND		30	Analog input GND	
An. output 1 GND		31	An. output 0	
An. output 2 GND		32	An. output 1	
An. output 3 GND		33	An. output 2	
An. output 4 GND		34	An. output 3	
An. output 5 GND		35	An. output 4	
An. output 6 GND		36	An. output 5	
An. output 7 GND		37	An. output 6	
			An. output 7	

1: The analog inputs have a common ground line
2: Each analog output has its own ground line

Pin assignment – 16-pin male connector

Dig. input 3-	16	Dig. input 3+
Dig. input 2-	14	Dig. input 2+
Dig. input 1-	12	Dig. input 1+
Dig. input 0-	10	Dig. input 0+
24 V voltage supply	8	High-side output 3 (24 V)
24 V voltage supply	6	High-side output 2 (24 V)
Masse (dig. output)	4	High-side output 1 (24 V)
Masse (dig. output)	2	High-side output 0 (24 V)

ADDI-DATA connection



Ordering information

CPCIs-3121

Multifunction board, opt. isolated, 16 SE / 8 diff. inputs, 4/8 analog outputs, 16-bit, for CompactPCI Serial. Incl. techn. description and software drivers.

Versions

CPCIs-3121-16-8	Version with 16 SE / 8 diff. inputs, 8 analog outputs
CPCIs-3121-16-4	Version with 16 SE / 8 diff. inputs, 4 analog outputs
CPCIs-3121-8-8	Version with 8 SE / 4 diff. inputs, 8 analog outputs
CPCIs-3121-8-4	Version with 8 SE / 4 diff. inputs, 4 analog outputs

Options

Please indicate the number of channels

Option SF:	Precision filter for 1 single-ended channel
Option DF:	Precision filter for 1 diff. channel
Option PC:	Current input 0(4)-20 mA for 1 channel
PC-SE:	for single-ended
PC-Diff:	for differential

Accessories

PX901-A:	Screw terminal panel for connecting the analog I/O
PX901-AG:	Same as PX901-A with housing for DIN rail
PX_BNC:	BNC connection box for connecting the analog I/O
PX901-ZG:	Screw terminal panel for connecting the digital I/O
ST010:	Standard round cable, shielded, twisted pairs, 2 m
ST011:	Standard round cable, shielded, twisted pairs, 5 m
FB3001:	Ribbon cable for digital I/O with 3U bracket

*Preliminary product information