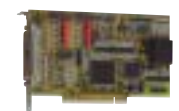


Isolated multifunction data acquisition board, 16-bit



also for **PCI**
see page 50



LabVIEW™



LabWindows/CVI™



DASYLab™



Features

- PCI interface to the 32-bit data bus
- Monitoring program for testing and setting the board functions

Analog inputs

- 16 single-ended/8 differential inputs or 8 single-ended/4 differential inputs
- 16-bit resolution
- Optical isolation 500 V
- Data transfer rate: 100 kHz
- Input voltage: 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
- PCI DMA for analog data acquisition
- Overvoltage protection
- Input filter: 160 kHz

Analog acquisition

- Acquisition of 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 scan) is started through signal switching from 0 to 24 V at digital input 0.
- Interrupt: end of single channel, end of multichannel, end of scan list

Analog outputs

- 4 or 8 analog outputs, optical isolation 500 V
- Setting time 30 μ s typ.
- 14-bit resolution (13-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)
- Driver capacity: 5 mA/500 pF
- Short-circuit protection, EMI filter

Digital

- 4 dig. inputs, 4 dig. outputs, 24 V, isolated

CPCI-3120

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

8/4 analog outputs, 14-bit

Optical isolation of the inputs and outputs

Automatic analog acquisition

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

Graphical display of the measured data

MTBF: 75 867 hours at 45 °C

Timer, Watchdog

Timer

- As cyclic time counter or as watchdog

Safety features

- Optical isolation 500 V min.
- Creeping distance IEC 61010-1 (VDE411-1)
- Overvoltage protection ± 12 V
- Protection against high-frequency EMI
- Input filter: 160 kHz
- Noise neutralization of the PC supply

EMC tested according to 89/336/EEC

- IEC 61326: electrical equipment for measurement, control and laboratory use

Applications

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

Software drivers

A CD-ROM with the following software and programming examples is supplied with the board.

Standard drivers for:

Linux kernel version 2.4.2;
Windows XP/2000/NT/98/95, MS-DOS.
Real-time driver for Windows XP/2000/NT/98/95.

Drivers for the following application software:

LabVIEW 5.01

Samples for the following compilers:

Microsoft VC++ 5.0
Microsoft C 6.0
Borland C++ 5.01
Borland C 3.1
Visual Basic 5.0
Delphi 4
Turbo Pascal 7.0

On request:

RTX • VxWorks • LabWindows/CVI 5.01 • Diadem 6/7
Embedded NT • DasyLab 6/7 • LabWindows/CVI

on request ADDIPACK functions:

Limited write/read function on the I/O signals
Current driver list on the web: www.addi-data.com

Isolated multifunction data acquisition board, 16-bit



CPCI-3120

Specifications

Analog inputs

Number of inputs:	16 single-ended/8 differential inputs or 8 single-ended/4 differential inputs
Resolution:	16-bit resolution
Optical isolation:	500 V through optical couplers from the PC to the peripheral
Input ranges:	per 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
Data transfer rate:	100 kHz
Gain:	software programmable (1, 2, 5, 10)
Common mode rejection:	DC at 10 Hz, 90 dB minimum
Relative precision (INL):	± 4 LSB
Diff. non-linearity (DNL):	16-bit
Input impedance (PDA):	$10^{12} \Omega / 10$ nF single-ended, $10^{12} \Omega / 20$ nF differential against GND
Band width (-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 Scan), DMA transfer at EOC
Interrupts:	End of conversion, timer overrun, End of Scan

Analog outputs

Number of outputs:	4 or 8
Resolution:	14-bit resolution
Optical isolation:	500 V through optical couplers
Output range:	0-10 V, ± 10 V switchable through software
Setup time at 2 k Ω , 1000 pF:	30 μ s
Overvoltage protection:	± 12 V
Max. output current / Load:	± 5 mA / 500 pF, 2 k Ω
Short-circuit current:	± 25 mA
Output voltage after reset:	0 V

Digital I/O

Number of I/O channels:	4 dig. inputs, 4 dig. outputs, 24 V
Optical isolation:	1000 V through optical couplers
Inputs current at 24 V:	3 mA typ.
Input range:	0-30 V
Output range:	5-30 V
Max. switching current:	5 mA typ.

Noise immunity

Test level:	- ESD: 4 kV	- Fields: 10 V/m
	- Burst: 4 kV	- Cond. radio interferences: 10 V

Physical and environmental conditions

Dimensions:	3U/4TE
System bus:	CompactPCI 32-bit 5 V acc. to spec. 2.1 (PCISIG)
Place required:	1 slot for analog I/O, 1 slot opening for digital I/O with FB3001
Operating voltage:	+5 V, ± 5 % from PC
Current consumption:	from 997 to 1030 mA typ. dep. on board version
Front connector:	37-pin SUB-D male connector
Additional connector:	16-pin male connector for connecting the dig. I/O
Temperature range:	0 to 60 °C (with forced cooling)
MTBF:	75,867 hours at 45 °C

ADDIALOG CPCI-3120

CPCI-3120: Isolated multifunction data acquisition, 16-bit, 3U European size. Incl. technical description and software drivers.

Versions

CPCI-3120-164 16 SE/8 diff. inputs, 4 analog outputs

CPCI-3120-168 16 SE/8 diff. inputs, 8 analog outputs

CPCI-3120-84 8 SE/4 diff. inputs, 4 analog outputs

CPCI-3120-88 8 SE/4 diff. inputs, 8 analog outputs

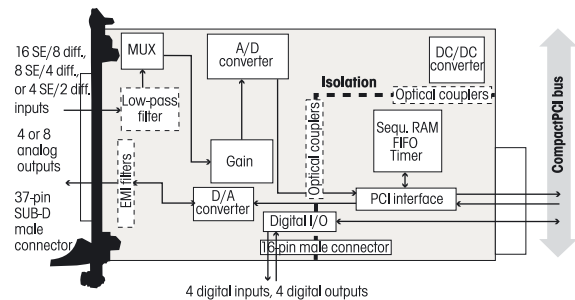
Options: Please specify the number of channels to be supplied with the required option.

URS-3120-6U: 6U bracket for mounting in a 6U housing

Option SF: Filter for 1 single-ended channel

Option DF: Precision filter for 1 diff. channel (30Hz)

Simplified block diagram

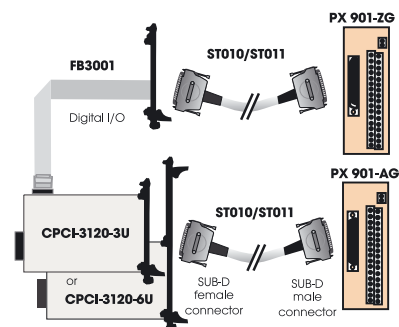


Pin assignment – 37-pin SUB-D male connector

DIFF		SE			SE	DIFF	
(+) An. input 0	(+) An. input 0	20	1	(+) An. input 8	(+) An. input 4		
(-) An. input 1	(-) An. input 1	21	2	(-) An. input 9	(-) An. input 5		
(+) An. input 2	(+) An. input 2	22	3	(+) An. input 10	(+) An. input 6		
(-) An. input 3	(-) An. input 3	23	4	(-) An. input 11	(-) An. input 7		
(+) An. input 4	(+) An. input 4	24	5	(+) An. input 12	(+) An. input 8		
(-) An. input 5	(-) An. input 5	25	6	(-) An. input 13	(-) An. input 9		
(+) An. input 6	(+) An. input 6	26	7	(+) An. input 14	(+) An. input 10		
(-) An. input 7	(-) An. input 7	27	8	(-) An. input 15	(-) An. input 11		
Analog input GND	Analog input GND	28	9	Analog input GND	Analog input GND		
An. output 0 GND	An. output 0 GND	29	10	An. output 1	An. output 2		
An. output 1 GND	An. output 1 GND	30	11	An. output 2	An. output 3		
An. output 2 GND	An. output 2 GND	31	12	An. output 3	An. output 4		
An. output 3 GND	An. output 3 GND	32	13	An. output 4	An. output 5		
An. output 4 GND	An. output 4 GND	33	14	An. output 5	An. output 6		
An. output 5 GND	An. output 5 GND	34	15	An. output 6	An. output 7		
An. output 6 GND	An. output 6 GND	35	16				
An. output 7 GND	An. output 7 GND	36	17				
		37	18				
			19				

1: The analog inputs have a common ground line
2: The analog outputs have separate ground lines

ADDI-DATA connection



ORDERING INFORMATION

Option PC: Current input 0(4)-20 mA for 1 channel
PC-SE: for one single-ended channel
PC-Diff: for one differential channel (30 Hz)

Connection

PX 901-A: Screw terminal board with transorb diodes for connecting the analog I/O

PX 901-AG: Same as PX 901-A with housing for DIN rail

PX 901-ZG: Screw terminal board for connecting the digital I/O, for DIN rail

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 37-pin SUB-D male connector with a 3U bracket

www.addi-data.com

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