

# cPCI-9112 Series

## 16-CH 12-Bit 110 kS/s Multi-Function DAQ Modules

### Features

- 3U Eurocard form factor, CompactPCI compliant (PICMG 2.0 R2.1)
- 12-bit A/D resolution
- Up to 110 kS/s sampling rate
- 16-CH single-ended or 8-CH differential inputs
- On-board 1 k-sample A/D FIFO
- Bipolar or unipolar analog input ranges
- Programmable gains of x0.5, x1, x2, x4, x8
- Automatic analog inputs scanning
- Bus-mastering DMA for analog inputs
- 2-CH 12-bit multiplying analog outputs
- 16-CH TTL digital inputs and 16-CH TTL digital outputs
- 1-CH 16-bit general purpose timer/counter
- Rear I/O available on cPCI-9112R

### Operating Systems

- • Windows 2000/NT/XP/9x
- • DOS
- • Red Hat Linux
- • Windows CE (call for availability)

### Recommended Software

- • VB/VC++/BCB/Delphi
- • DAQBench

### Driver Support

- • PCIS-DASK for Windows 2000/NT/XP/9x
- • PCIS-DASK/X for Red Hat Linux
- • PCIS-OCX ActiveX controls
- • PCIS-LVIEW/PnP for LabVIEW **NEW!**



### Introduction

ADLINK cPCI-9112 and cPCI-9112R are 16-CH, 12-bit, 110 kS/s multi-function DAQ modules for PXI/CompactPCI form factor. The cPCI-9112 devices feature flexible configurations on analog inputs. They provide analog inputs with 4 programmable input ranges for both bipolar and unipolar inputs. The A/D on the cPCI-9112 devices features a sampling rate of up to 110 kS/s with resolution at 12 bits. The devices support automatic analog input scanning, and offer a differential mode for 8-CH analog inputs and maximum noise elimination, as well as single-ended modes for 16-CH analog inputs.

The cPCI-9112 devices also feature 2-CH 12-bit analog outputs, 1-CH 16-bit general purpose timer/counter, 16-CH TTL digital inputs and 16-CH TTL digital outputs. The cPCI-9112R allows I/O connectivity to be routed through the backplane via J2/P2 allowing a rear I/O transition module to be inserted, which is capable of efficient trouble-shooting and maintenance. ADLINK cPCI-9112 devices deliver cost-effective and reliable data acquisition capabilities, and are ideal for a broad variety of applications.

### Specifications

#### Analog Input

- Number of channels: 16 single-ended or 8 differential
- Resolution: 12 bits
- Conversion time: 8  $\mu$ s
- Maximum sampling rate: 110 kS/s
- Input signal ranges (software programmable)

Gain	Input Range	
	Bipolar	Unipolar
0.5	$\pm 10$ V	—
1	$\pm 5$ V	0 to 10 V
2	$\pm 2.5$ V	0 to 5 V
4	$\pm 1.25$ V	0 to 2.5 V
8	$\pm 0.625$ V	0 to 1.25 V

#### Accuracy

Gain	Accuracy
0.5, 1	0.01 % of FSR $\pm 1$ LSB
2, 4	0.02 % of FSR $\pm 1$ LSB
8	0.04 % of FSR $\pm 1$ LSB

- Input coupling: DC
- Overvoltage protection: continuous  $\pm 35$  V
- Input impedance: 1 G $\Omega$
- Trigger modes: Software, pacer, and external trigger (5 V/TTL compatible)
- Data transfers: polling, interrupt, bus mastering DMA

#### Analog Output

- Number of channels: 2 voltage outputs
- Resolution: 12 bits
- Output ranges (software programmable)

Output Range	
Bipolar	$\pm 10$ V, $\pm 5$ V, $\pm$ EXTREF
Unipolar	0 to 10 V, 0 to 5 V, 0 to EXTREF

#### Digital I/O

- Number of channels: 16 inputs and 16 outputs
- Compatibility: 5 V/TTL
- Data transfers: programmed I/O

#### General-Purpose timer/counter

- Number of channels: 1
- Resolution: 16 bits
- Compatibility: 5 V/TTL
- Base clock available: 2 MHz, external clock up to 10 MHz

#### General Specifications

- I/O connector: 100-pin SCSI-II female
- Operating temperature: 0 to 60 °C
- Storage temperature: -20 to 80 °C
- Relative humidity: 5 to 95%, noncondensing
- Power requirements

Device	+5 V	+12 V
cPCI-9112	600 mA typical	20 mA typical
cPCI-9112R		

- Dimensions (not including connectors) 160 mm x 100 mm

### Termination Boards

#### DIN-100S

Termination Board with a 100-pin SCSI-II Connector and DIN-Rail Mounting (Including One 1-meter ACL-102100 Cable)

### Ordering Information

- **cPCI-9112**  
16-CH 12-Bit 110 kS/s Multi-Function DAQ Module
- **cPCI-9112R**  
16-CH 12-Bit 110 kS/s Multi-Function DAQ Module with rear I/O
- **cPCI-9112/6U**  
16-CH 12-Bit 110 kS/s Multi-Function DAQ Module with 6U panel

Note: Rear I/O version can not be used in PXI chassis due to signals conflict with PXI bus

### Pin Assignment

#### cPCI-9112, cPCI-9112R

DOUT_0	1	51	GND
DOUT_1	2	52	GND
DOUT_2	3	53	GND
DOUT_3	4	54	GND
DOUT_4	5	55	GND
DOUT_5	6	56	GND
DOUT_6	7	57	GND
DOUT_7	8	58	GND
DOUT_8	9	59	GND
DOUT_9	10	60	GND
DOUT_10	11	61	GND
DOUT_11	12	62	GND
DOUT_12	13	63	GND
DOUT_13	14	64	GND
DOUT_14	15	65	+5Vout
DOUT_15	16	66	+5Vout
DIN_0	17	67	GND
DIN_1	18	68	GND
DIN_2	19	69	GND
DIN_3	20	70	GND
DIN_4	21	71	GND
DIN_5	22	72	GND
DIN_6	23	73	GND
DIN_7	24	74	GND
DIN_8	25	75	GND
DIN_9	26	76	GND
DIN_10	27	77	GND
DIN_11	28	78	GND
DIN_12	29	79	GND
DIN_13	30	80	GND
DIN_14	31	81	+5Vout
DIN_15	32	82	+5Vout
EXTCLK	33	83	GND
EXTTRG	34	84	GND
COUT0	35	85	COUT1
GATE0	36	86	GATE
+12Vout	37	87	AGND
ExtVref2	38	88	AGND
ExtVref1	39	89	AGND
REFout	40	90	AGND
DA2	41	91	AGND
DA1	42	92	AGND
AI7 (AIH7)	43	93	AI15 (AIL7)
AI6 (AIH6)	44	94	AI14 (AIL6)
AI5 (AIH5)	45	95	AI13 (AIL5)
AI4 (AIH4)	46	96	AI12 (AIL4)
AI3 (AIH3)	47	97	AI11 (AIL3)
AI2 (AIH2)	48	98	AI10 (AIL2)
AI1 (AIH1)	49	99	AI9 (AIL1)
AI0 (AIH0)	50	100	AI8 (AIL0)

1 Software Solutions

2 PXI/CompactPCI Platforms

3 PXI-Based Instruments

4 PXI/CompactPCI Modules

5 PCI DAQ Cards

6 PCI DIO Cards

7 PC/104-Plus Products

8 ISA DAS/DIO Cards

9 Wiring Termination Boards

10 Motion Control Cards

11 Machine Vision Products

12 Remote I/O Modules