

# PCM-9112+

## PCI/104-Plus 16-CH 12-Bit 110 kS/s Multi-function DAQ Module

### Features

- PC/104-Plus specifications Rev. 1.2 compliant
  - 12-bit A/D resolution
  - Up to 110 kS/s sampling rate
  - 16-CH single-ended or 8-CH differential inputs
  - On-board 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
  - 1-CH 16-bit general purpose timer/counter
- **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 PCM-9112+ is a 16-CH, 12-bit, 110 kS/s multi-function DAQ module for PC/104-Plus form factor. The PCM-9112+ module features flexible configurations on analog inputs. It provides analog inputs with 4 programmable input ranges for both bipolar and unipolar inputs. The A/D on the PCM-9112+ module features a sampling rate of up to 110kS/s with resolution at 12 bits. The module supports automatic analog input scanning, and offers a differential mode for 8-CH analog inputs and maximum noise elimination, as well as single-ended modes for 16-CH analog inputs.

PCM-9112+ also features 2-CH 12-bit analog outputs and 1-CH 16-bit general purpose timer/counter. Incorporating the PCI bus within the industry proven PC/104 form-factor brings many advantages including fast data transfer over a PCI bus and high reliability due to PC/104's inherent ruggedness. ADLINK PCM-9112+ delivers cost-effective and reliable data acquisition capabilities and the module is 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: programmed I/O, interrupt, bus mastering DMA

#### Analog Output

- Number of channels: 2 voltage outputs
- Resolution: 12 bits

#### Output ranges (software programmable)

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

- Output driving capacity:  $\pm 5$  mA max
- Settling time: 30 $\mu$ s to 0.5 LSB
- 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 to 10MHz

#### General Specifications

- I/O Connector: Two 20-pin ribbon male
- Operating temperature: 0 to 60  $^{\circ}$ C
- Storage temperature: -20 to 80  $^{\circ}$ C
- Relative humidity: 5 to 95%, noncondensing
- Power requirements

+5V	+12V
460 mA typical	110 mA typical

- Dimensions (not including connectors)  
95.9 mm x 90.2 mm

### Termination Boards

- **DIN-20P**  
Termination Board with a 20-pin Ribbon Connector and DIN-Rail Mounting (Including One 1-meter ACL-10120 Cable)

### Pin Assignment

#### CN1: Analog Input

AI0 (AIH0)	1	2	(AIL0) AI8
AI1 (AIH1)	3	4	(AIL1) AI9
AI2 (AIH2)	5	6	(AIL2) AI10
AI3 (AIH3)	7	8	(AIL3) AI11
AI4 (AIH4)	9	10	(AIL4) AI12
AI5 (AIH5)	11	12	(AIL5) AI13
AI6 (AIH6)	13	14	(AIL6) AI14
AI7 (AIH7)	15	16	(AIL7) AI15
AGND	17	18	AGND
AGND	19	20	AGND

#### CN2: Analog Output and Timer/Counter

V.REF	1	2	AO1
ExtRef2	3	4	ExtRef1
+12Vout	5	6	AO2
AGND	7	8	GATE0
DGND	9	10	GATE
Cout0	11	12	Cout1
ExtTrg	13	14	N/C
N/C	15	16	ExtCLK
+5Vout	17	18	N/C
N/C	19	20	N/C

### Ordering Information

- **PCM-9112+**  
PC/104-Plus 16-CH 12-Bit 110 kS/s Multi-function DAQ Module