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Find the *WinSystems PCM-A/D16* at our website: ***Click HERE***

WinSystems®

PC/104 MODULE

PCM-A/D12
PCM-A/D16
Low Cost 12 & 16-bit A/D

FEATURES

- Complete 12-bit A/D subsystem: PCM-A/D12
  16-bit A/D subsystem: PCM-A/D16
- 16 single ended or 8 differential input channels
- Sample and hold supported
- Input ranges: 0-5V, ±10V
- All input channels protected to ±30V
- 33 KHz throughput
- Operates in Polled Mode or Interrupt at end-of-conversion
- Programmable board I/O address
- Low power and low cost
- PC/104 compatible
- Small size: 3.6" x 3.8" (90 mm x 96 mm)
- Extended operating temperature range: -40°C to +85°C
- Optional DC/DC converter for operation with single +5 volt supply
- Optional Analog Adapter panel for field wiring termination, 4-20 mA, and signal conditioning

The PCM-A/D12 and PCM-A/D16 are low cost, general purpose, successive approximation analog-to-digital converters. They serve as data acquisition modules for use with PC/104 compatible embedded systems. The analog inputs are configurable as either single-ended or differential inputs.

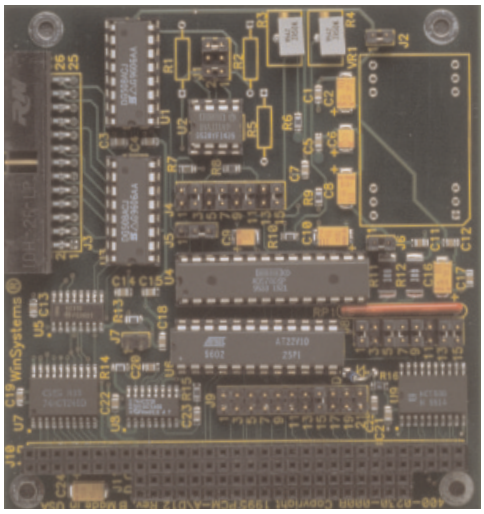
The PCM-A/D12 is a 12-bit A/D converter and the PCM-A/D16 is a 16-bit A/D converter. When both boards have the same features, they will be referred to as the PCM-A/D in this datasheet.

FUNCTIONAL CAPABILITY

PC/104 Interface - The PCM-A/D is I/O port mapped and requires 4 contiguous addresses on any even four port boundary.

Analog-to-Digital Converter - The PCM-A/D12 uses the 7806 which is software compatible with the 7807 and has the same conversion rate.The PCM-A/D16 uses the low power, Burr-Brown 7807, 16-bit, analog-to-digital converter. The device samples and digitizes to 16-bits within 25uS.

Two input ranges are supported: 0 to +5 volts and ±10 volts. The board is selected by a jumper option to be configured for either unipolar or bipolar operation. Coding is two's complement for bipolar and straight binary for unipolar operation. Potentiometers are on the card to permit both gain and offset adjustment.



Starting a Conversion - The conversion is begun by writing a word to the control register to select the channel. Output data is latched in the chip and the PCM-A/D sets a Busy flag signaling that the conversion is complete.

Interrupts - An analog-to-digital conversion is begun each time the channel number is written to the board. An end-of-conversion generates an interrupt that is field jumper selectable to one of eleven interrupt request lines (IRQ 2 - 7, 10 - 12, 14, and 15) on the PC/104 Bus.

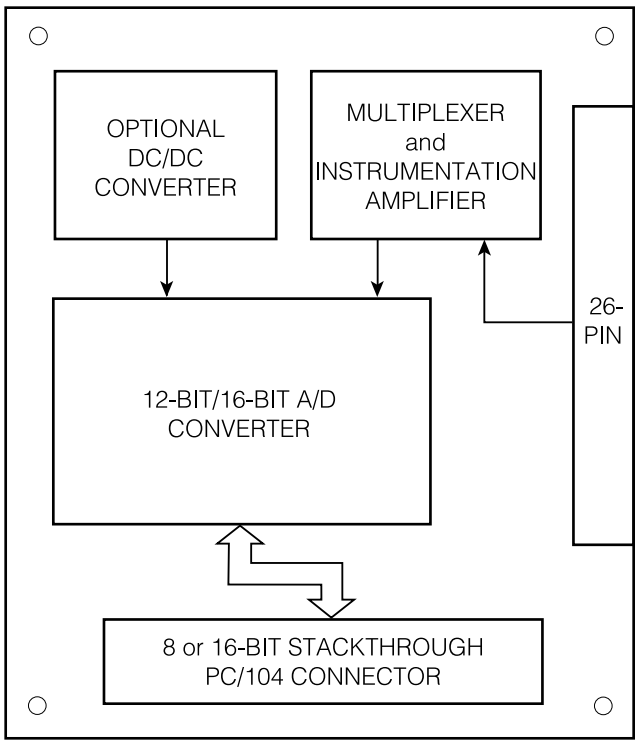
Multiplexer - The PCM-A/D module contains two, 8 channel fault-protected 508A CMOS Analog Multiplexers with overvoltage protection. They can withstand continuous analog input voltages of ±30V which eliminates the possibility of damage when the power supplies are turned off. Equally important, they can withstand brief input transient spikes which would otherwise require complex external protection networks.

Input Configuration - Each A/D channel is input from a single 26-pin connector. WinSystems offers the CBL-120-3 which is a 3 foot, #28 AWG, ribbon cable designed to provide access to signals from the 26-pin, 0.100 " grid connector on the PCM-A/D.

In differential mode, IN+ and IN- are selected from pairs of CH0/CH8, CH1/CH9, CH2/CH10, CH3/CH11, CH4/CH12, CH5/CH13, CH6/CH14, and CH7/CH15.

Also available is the CBL-130-4 is a 4 foot, ribbon cable that will connect the PCM-A/D to the Analog-ADP. The

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PCM-A/D BLOCK DIAGRAM

Analog-ADP is a non-isolated signal conditioner and termination panel of analog signals for use with WinSystems' A/D converters.

J1 - Analog Input Connector

Pin	Description	Pin	Description
1	CH. 0	2	CH. 8
3	CH. 1	4	CH. 9
5	Ground	6	Ground
7	CH. 2	8	CH. 10
9	Ground	10	Ground
11	CH. 3	12	CH. 11
13	Ground	14	Ground
15	CH. 4	16	CH. 12
17	Ground	18	Ground
19	CH. 5	20	CH. 13
21	Ground	22	Ground
23	CH. 6	24	CH. 14
25	CH. 7	26	CH. 15

Field Wiring - The Analog-ADP termination board is available for terminating field wiring. This signal conditioning panel is for use with WinSystems' PCM-A/D modules. It provides a multitude of termination options including signal protection for the analog input signals plus it serves as a field wiring to ribbon cable adapter. The PCM-A/D and Analog-ADP are connected by the CBL-130-4, 26-pin ribbon cable connector.

Either 0 to +5V or 0 to ±10V inputs are accepted on the 16 channels. For 4-20 mA sensors, close tolerance 250 ohm termination resistors can be installed on the Analog-ADP termination panel. A directly proportional +1 to +5 volt signal will be generated across the shunting resistor.

SPECIFICATIONS

Electrical

A/D Section

Number of Channels: 16 S.E. or 8 D.I.
A/D Resolution: 16-bits (PCM-A/D16)
12-bits (PCM-A/D12)
Input range: 0 to +5 volts; -10 to +10 volts; single ended or differential
Coding: Natural binary (unipolar)
Two's complement (bipolar)
Nonlinearity: ±1.5 LSB (PCM-A/D16)
±0.5 LSB (PCM-A/D12)
Gain error: Adjustable to zero
Total conversion time: 30 microseconds

PCM-A/D16 Power Requirements:
With DC/DC converter installed
+5 VDC +5% at 200mA (typ.)
Without DC/DC converter installed
+5 VDC +5% at 150mA (typ.)
+12VDC +5% at 5mA (typ.)
-12VDC +5% at 5mA (typ.)

Mechanical

Dimensions: 3.6" x 3.8" (90 mm x 96 mm)

Connectors

Input: 26-pin dual on 0.100" grid

Environmental

Operational Temperature: -40°C to +85°C

ORDERING INFORMATION

PCM-A/D12-16	12-bit A/D PC/104 module
PCM-A/D12-16-DC	A/D12-16 module with DC/DC converter
PCM-A/D16-16	16-bit A/D PC/104 module
PCM-A/D16-16-DC	A/D16-16 module with DC/DC converter
CBL-120-3	3 ft., 26 conductor ribbon cable with one unterminated end
CBL-130-4	4 ft., 26 conductor, ribbon cable to the Analog-ADP card
Analog-ADP	16-channel termination panel

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