MSI PC/104
Embedded PC Series

MSI-P450 ANALOG INPUT/OUTPUT CARD

FEATURES

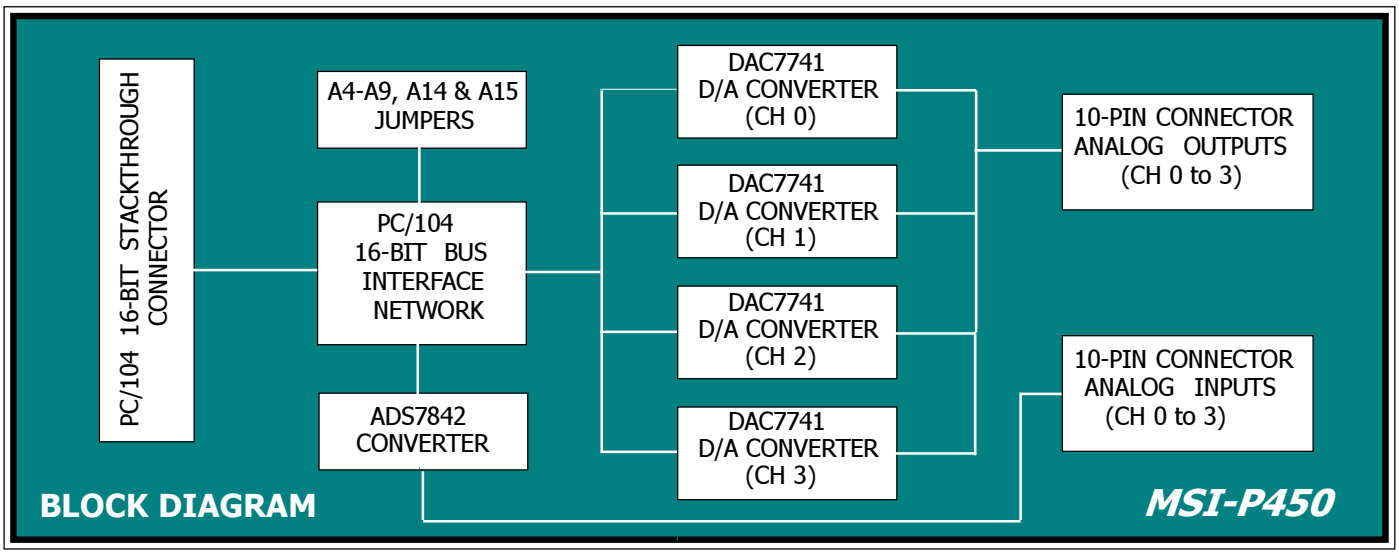
- Up to four 16-bit analog output channels.
- Four 12-bit analog input channels.
- Selectable 0-10V, ±5V, or ±10V output ranges with 16-bit resolution, ±6 LSB max. non-linearity.
- Selectable 0-5V or 0-10V, input ranges with 12-bit resolution, ±1 LSB max. non-linearity.
- Single +5V operation.
- 16-bit stackthrough PC/104 with I/O mapped addressing and 16-bit I/O reads and writes.
- Jumper selectable card addresses and voltage ranges.
- Operating temperature range -40°C to 85°C.
- One-year warranty from date of shipment.

DESCRIPTION

The MSI-P450 series is a low cost, high performance analog I/O board providing four 12-bit analog input channels and up to four 16-bit analog output channels. The board is designed for use with all PC/104 embedded systems. Eight models provide from 1 to 4 analog outputs with or without 4 analog inputs. Analog input channels are each selectable for 0-5V or 0-10V with a maximum non-linearity of ±1 LSB. Each analog output channel is selectable for 0-10V, ±5V or ±10V with a maximum non-linearity of ±6 LSB. The card operates from a single +5V supply. A block diagram of the card is shown in Fig. 1.

The card employs an ADS7842 for A/D inputs and up to four DAC7741 for D/A outputs. Potentiometers are provided for adjustment of the offset and gain of each analog output. Single 10-pin connectors are provided for the analog inputs and the analog outputs.

(over)



The card is I/O mapped using 16-bit addressing to select the input channels and device status. Option jumpers are provided for specifying the card base addresses A4 thru A9, A14 and A15. I/O reads and writes are 16 bits in length for efficient software sequences for acquiring data.

The card is supplied with a User Manual containing detailed hardware descriptions with schematic diagrams and a sample 'C' program example.

Standard Models:

MSI-P450	4 Input/4 Output Channels
MSI-P450-4-3	4 Input/3 Output Channels
MSI-P450-4-2	4 Input/2 Output Channels
MSI-P450-4-1	4 Input/1 Output Channels
MSI-P450-0-4	0 Input/4 Output Channels
MSI-P450-0-3	0 Input/3 Output Channels
MSI-P450-0-2	0 Input/2 Output Channels
MSI-P450-0-1	0 Input/1 Output Channels

SPECIFICATIONS

PC/104	16-bit, stackthrough
PC/104 Data Bus	16-bit
Analog Inputs	
Channels	4
Converter	ADS7842E
Single-ended Input Ranges	0-5V, 0-10V
Resolution	12 bits
Clock Freq.	2 MHz
Conversion Time	6 us maximum
Non-linearity	±1 LSB
Offset Error	±3 LSB
Gain Error	±4 LSB
Signal-to-Noise	71 dB typical
Input Impedance	249kOhm (0-5V) 498kOhm (0-10V)
Analog Outputs	
Channels	Up to 4
Converter	DAC7741Y
Outputs	Single-ended
Ranges	0-10V, ±5V, ±10V
Resolution	16 bits
Non-linearity	±6 LSB maximum
Offset Error	±0.1 % of FSR
Gain Error	±0.4 % of FSR
Settling Time to ±0.003%	2 us
Reference Voltage	10V Internal
Output Current	±5 mA
Output Impedance	0.1 Ohm Typical
Connectors	
Input	30310-5002-HB or eq.
Output	30310-5002-HB or eq.
Option Jumpers	
Address & Input Range	.025" square posts, 0.1" grid
Analog Output Range	0.5mm square post, 2mm grid

Electrical & Environmental

+5V @ 300 mA typical, 4 Input & 4 Output Channels
-40° to 85°C Operating Temperature

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