

# LUMISTAR

## LS-71-P 16 or 32 Channel PCI DAC With Multiple Data Stream Option Data Sheet

### Description:

The LS-71P PCI D/A Converter (DAC) board provides high speed analog outputs of PCM decommutated data allowing real time data displays using strip chart recorders or similar devices. The LS-71-P board is designed to be used in conjunction with the Lumistar LS-50-P Multifunction PCM Decommutator boards and uses an over-the-top communication bus directly from the decom to the DAC to avoid any glitches in the analog outputs due to PCI bus activity. Direct "mailbox" type access is also provided to allow the user to send information through the PCI bus to the DACs. The DAC board design allows 2 LS-50-D Multifunction decom boards to be used with a single DAC board allowing tagged data from either data stream to be directed to any DAC channel. An optional LS-71-DB Word Selector Daughterboard allows two additional data streams to be monitored with the ability to select channels from 4 data streams to be displayed on any DAC channel. The design incorporates an extremely large memory (more than 200,000 16-bit words) used as a lookup table allowing linear or non-linear EU conversions with constant delay regardless of the number of polynomial coefficients required. Standard product supports a single decom, however, dual decom support is available as an option.



### Key Features:

- PCI Bus Compatible D/A Converter board
- Use with Lumistar LS-50/55 Multifunction Decoms
- LS-71-P16 (16 Channel) and LS-71-P32 (32 Channel) versions available
- Accepts one or two input data streams (four streams with daughterboard option)
- Allows any DAC channel to be selected from any Decom
- Global software control of channel gain and offset
- Look-up tables provide for individual gain/offset, and polynomial conversions
- Software includes powerful math engine
- Software controlled calibration
- Dedicated High Speed Data Bus (over-the-top) from Decom boards or Direct Processor Write through PCI Bus
- 2 M word/sec for EU converted data selector throughput

## Parallel Inputs:

Parallel Data	Dedicated high speed parallel bus from an LS-50 Decom to each DAC word selector
Word Selectors	1 or 2 on the main DAC board; 2 optional on daughterboard allowing up to 4 independent input data streams
Major Frame DMA Transfers	64 K words max per stream Has PCI DMA capability for table transfers

## Analog Outputs:

Number of Channels	16 channels on LS-71-P16 32 channels on LS-71-P32
Output Range	Control of gain and offset with ranges of $\pm 10$ , $\pm 5$ , $\pm 2.5$ , 0-10, 0-5, or 0-2.5 VDC
DAC Output Resolution	14 bit resolution 0.122 mV/bit (all ranges)
DAC 3dB BW	1.3 MHz
DAC Slew Rate	25V/microsecond
Linearity	$\pm 1$ LSB

## Word Selector Throughput Rates:

Per board	10 MW per second
Per channel (raw)	5 MW per second
Per channel (processed)	2 MW per second

## Processing:

EU Conversion	Lookup Table
EU Type	Unlimited
Lookup Table Size	2 to 64K entries each
Lookup Entries	Shared or Dedicated
Concatenation	Can be programmed to concatenate segmented data parameters
Calibration	Programmable through System Software provided at no additional charge

## Environmental:

Operating Temp	0° to +50° C
Non-Op Temp	-25° to +70° C
Operating Humidity	0 to 90% (Non-condensing)
Non-Op Humidity	Protect from moisture and contamination

## Physical:

Form Factor	Full Size PCI Board
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Input Connections	Parallel interface from LS-50P board for each word selector using 40 pin 0.1" pitch dual inline header
Output Connector Mating Connectors	68 contact SCSI-2 style connector Lumistar will provide a mating connector with the hardware which accepts IDC ribbon cable allowing the user to create custom cables to the strip chart recorder. Optional rack mount panel with BNC terminations is available for additional cost.

## Power Requirements:

+5 V; 500 mA (typ)
+12V; 85 mA (typ) with no load on outputs
-12V; 65 mA (typ) with no load on outputs
NOTE: +/- 12V current drain is a function of output load and voltage range. With 1K Ohm loads for +/-10V range add 320ma to both + and - 12V.

## Available Versions:

LS-71-P16	16-Channel PCI DAC
LS-71-P32	32-Channel PCI DAC
Single word selector version (standard) add D suffix for dual	

## Compatible Lumistar Decoms:

LS-50-P PCI Multifunction Decom Board
LS-50-D Short PCI Multi-Function Decom Board
LS-55-DD Short PCI Dual Multi-Function Decom Board
LS-50-V VME Multifunction Decom Board

## BNC Breakout Panels (Optional):

LS-71-PA16 Rack Mount BNC Panel - 16 Ch
LS-71-PA32 Rack Mount BNC Panel - 32 Ch

