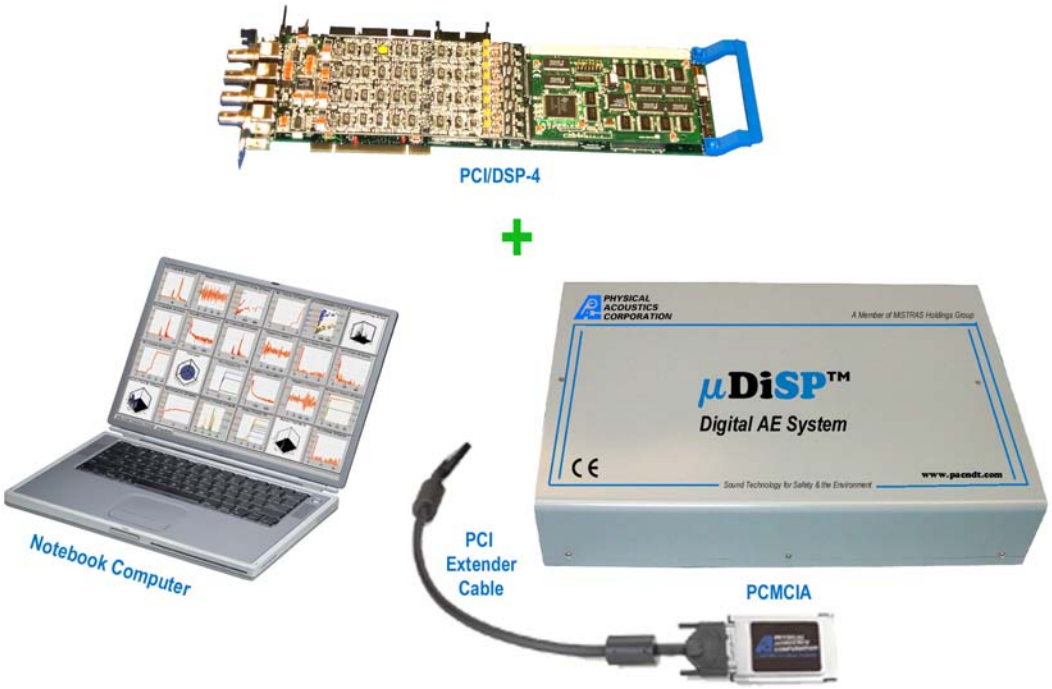
MISTRAS
A World of NDT Solutions
Products & Systems Division

Product Bulletin

µDiSP™ Notebook Based Portable DSP Workstation for Advanced Acoustic Emission Testing



The **µDiSP** is a small, truly portable, **battery (optional) and notebook operated**, acoustic emission system. It is similar in size to a notebook computer, containing one or two PCI/DSP-4 cards to form a powerful 4 or 8 channel, simultaneous processing of Acoustic Emission features and waveforms, DiSP based system. Key advantages of the µDiSP over conventional AE system chassis's include its small size yet high channel density (up to 8 channels), its portability and light weight (less than 10 lbs), its connectivity to a notebook computer, all while maintaining very good AE acquisition performance and field ruggedness. An external connector allows connection of up to 8 parametrics, control input and Alarm output functions.

Notebook computers have become a common and necessary tool for all professionals. That is why PAC is now capitalizing on this and making it a part of your AE system. The notebook computer, used in the AE examination as a µDiSP Controller, contains the collected AE data. After the AE test, the same notebook can be used to do the analysis of the data, or for preparing the report, whether on-site, in a hotel or on an airplane. There are **2 models** of µDiSP, one AC powered only and one for **AC/DC powering with or without internal battery option** for up to 85 minutes of operation on a charge. An external battery option is also available to **extend operation to 8 hours**. The µDiSP chassis is 16" long 9.5" wide and 2.9" high and is comfortable sitting just below the notebook computer.

The µDiSP comes complete with a PC-Card and cable to plug into the notebook computer's PCMCIA connector port. Most Notebook computers are compatible with the µDiSP PC-Card interface. The system requires a notebook with Windows 98 (Second Edition), ME, 2000 or XP to operate and will run with PAC's AEwin™ WINDOWS software. While the majority of "name brand" notebooks are compatible with the µDiSP's PCMCIA Card, PAC will provide our customers with "best effort" service to interface your computer to our system. PAC advises that the customer purchase the notebook from PAC or call in advance to determine if their existing notebook is compatible for the µDiSP.

Copyright © 2009 - 2004 MISTRAS Group Inc. All Rights Reserved. Specifications subject to change without notice. PAC #108802

PCI/DSP-4 Specifications:

Physical Specifications:

- **Size:** 12.28" L x 4.2" H x 0.6" T
- **Weight:** 1.1 lbs.
- **Power Consumption:** 18 watts
- **DC Power:** +12.0 volts 0.6 amps
  -12.0 volts 0.1 amps
  +5.0 volts 2.0 amps (1 amp can be from + 3.3V)

Interface to PC: Through PCI (Peripheral Component Interconnect Bus)

Electrical Specifications:

- **AE Inputs:** 4 channels
- **Input Impedance:** 50 ohms
- **Sensor Testing:** AST
- **Frequency Response:** 10 kHz - 2.1 MHz ± 1.0 dB

SPM Module (Attaches to PCI/DSP-4 Main Board):

- **Dimensions:** 3.5"x 6.5" module with filters & ADC's
- **Filters:** 4 High Pass - software selectable 10kHz, 20 kHz, 100 kHz, 200 kHz,
  4 Low Pass - software selectable 100kHz, 200 kHz, 400 kHz, 2.1 MHz
- **Noise Minimum Threshold:** 18 dB AE
- **Maximum Signal Amplitude:** 100 dB AE
- **ADC Type:** 16 bit, 10 MSPS per channel
- **Dynamic Range:** > 82 dB
- **Sample Rate:** Fixed @ 10 MSPS (for features)

Processor: TMS320C33 - 32 bit Floating Point DSP

- **Speed:** 75 MHz, 150 MFLOPS
- **Standard On-board Memory:** 1 Mbyte

Waveform Option Module: 4-channel plug-in module

- **Processor:** On-board DSP Processor
- **DSP & Waveform Buffer:** 1 Mbyte
- **Waveform Memory:** 128 kbytes/channel standard
- **Sample Length:** Variable from 1 to 15 ksamples per channel
- **Waveform Sample Rate:** Selectable 10 MSPS, 5 MSPS, 2.5 MSPS, 1 MSPS, 500 KSPS, 200 KSPS, 100 KSPS

Parametrics: All parametrics are located on the first board

- **Parametric Channels:** 8 channels standard on Master PCI/DSP-4 (1st board), ± 10 volt input, 16-bit A/D
- **Parametric Input Type:** Differential on channels 1-2, single ended on 3-8
- **Parametric Sample Rate:** 20 kHz sample rate for each analog parametric
- **Hit Driven Parametrics:** 2 - Analog Hit Parametrics, Serial bus to transmit parametrics to all PCI/DSP-4 boards in all chassis at parametric sample rate
- **Time Parametrics:** All 8 parametrics are available in time data set
- **Time Driven Data Rate:** 10 msec. to 60 seconds Controlled by software
- **Parametric Time Gate:** AE data acquisition inhibited by parametric value. Two Thresholds. Flexible gating options - outside thresholds, inside thresholds, positive/negative slope
- **Cycle Counter: Type:** 24 bit count resolution. Software programmable threshold from 0 - 5.00 volts in 10 mv steps. Independent software selectable source - analog parametric channel 1 - 4 (filtered or unfiltered). Serial bus transmits cycle counter to all PCI/DSP-4s in all chassis

Audio Monitor: Software controllable analog switches and buffer to select desired channels to be routed to audio monitor board

LED Activity Monitor: On-board Hit LED drivers, directly connect to LEDs on front panel

For more information call us at (609) 716-4000, email us at sales.systems@mistrasgroup.com, or fax us at (609) 716-0706

For information on our products and services, visit our web site at: www.mistrasgroup.com

195 Clarksville Road, Princeton Junction, NJ 08550 USA
Phone: (609) 716-4000 • Fax: (609) 716-0706
Email: sales.systems@mistrasgroup.com • www.mistrasgroup.com

Copyright © 2009 - 2004 MISTRAS Group Inc. All Rights Reserved. Specifications subject to change without notice. PAC #108802