

ORDELA MODEL AIM-312 DUAL-PARAMETER ANALYZER

DESCRIPTION

The ORDELA Model AIM-312 Dual-Parameter Analyzer is a pulse height analyzer and data acquisition system designed to generate one- or two-dimensional histograms from data obtained through either one or both of its two analog input ports. The amplitude of each analog pulse is digitized and stored in on-board memory. The Model AIM-312 interfaces directly to either one or two ORDELA Model AIM-206 Position Decoders for one- or two-parameter data analysis. If the signal source is a position-sensitive device such as a position-sensitive proportional counter, the resulting histograms are spatial images. However, the AIM-312 may be used to acquire multi-parameter data from any signal source(s). Thus, histograms can be acquired where events are sorted according to any combination of measurable quantities such as position, energy, temperature, pressure, velocity, or acceleration. The AIM-312 is packaged in a double-width nuclear instrument module (NIM) that contains an on-board micro-controller (INTEL 80C31) and 500 k-bytes of SRAM. The memory is factory-configured with a hardwired configuration block to customer specifications and is sufficient to store a single 512 by 512 channel histogram with an individual channel capacity of 65535 counts. Time-slicing is possible when smaller histograms are used with the constraint that $NX \times NY \times NF = 262144$ where NX and NY are the histogram dimensions and NF is the maximum number of frames. Factory-set configurations include but are not limited to the following combinations of NX, NY and NT:

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| 256 x 256 x 4 | 4096 x 1 x 16 |
| 512 x 256 x 2 | 1024 x 1 x 64 |
| 512 x 512 x 1 | |

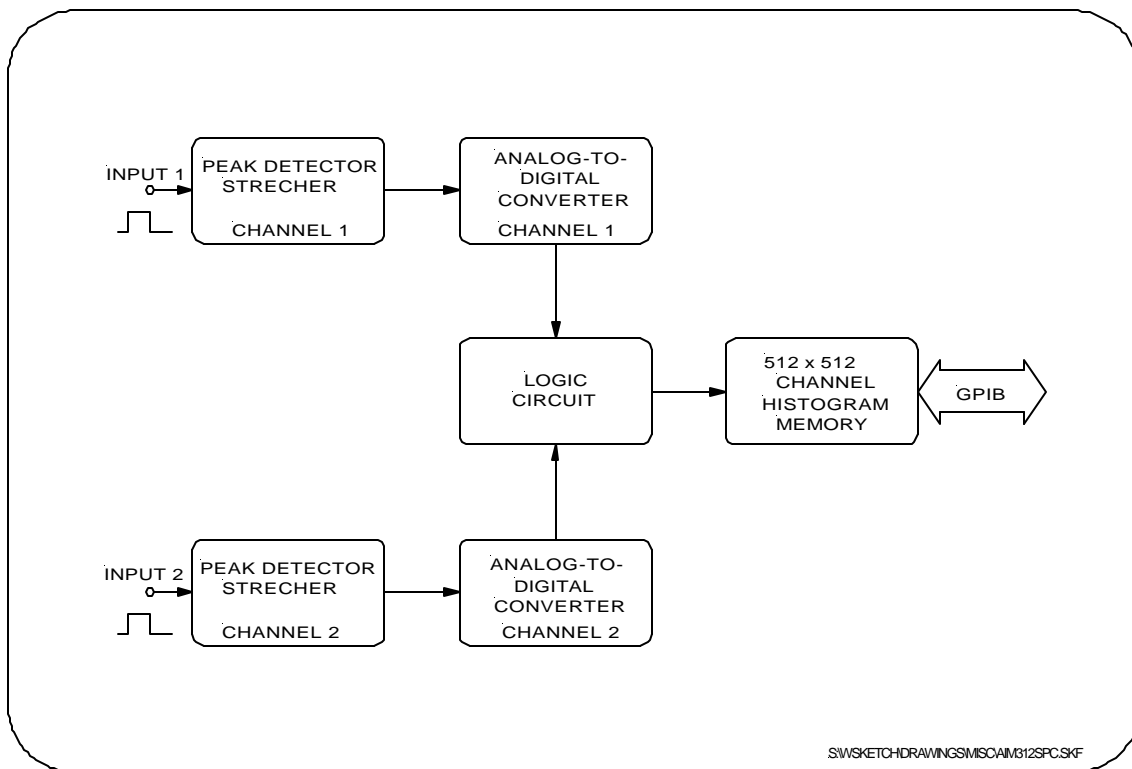
The AIM-312 Dual-Parameter Analyzer is designed to interface to a host processor via a standard IEEE-488 (GPIB) parallel interface using a commercially available GPIB interface card appropriate for the particular host processor. The connection is made through a rear-panel standard 24-pin GPIB connector (similar to a parallel printer port connector).

The AIM-312 Dual-Parameter Analyzer is an intelligent module designed to be slaved to a host-processor from which it accepts instructions and to which it supplies data in the form of one- or two-dimensional histograms. Once a data acquisition cycle is initiated, no further intervention from the host-processor is necessary. However, the host can determine the status of the AIM-312 via several polling procedures, or alternatively, the host can enable an interrupt which the AIM-312 sets at completion of the data acquisition cycle or at the occurrence of some other preset condition. Included in the data acquisition routine is a mode which waits for trigger pulses from the host-processor to start and stop individual acquisition intervals, thus allowing for synchronization with other processes.

SPECIFICATIONS

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| ANALOG INPUTS: | PHA-1 and PHA-2 - Two front panel BNC connectors, 100 Ω input impedance, accepting 0 to 10 V positive pulses with a dwell time of 1 to 4 μ s. |
| CONTROL INTERFACE: | GPIB - Rear-panel standard 24-pin GPIB connector, communications between the host-processor and the AIM-312 is accomplished by sending ASCII strings across the GPIB interface. Software protocols between the host-processor and the AIM-312 are fully defined in ANSI/IEEE Std 488-1978 or its international counterpart, IEC Publication 625-1. GPIB interface is implemented with an INTEL |

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| | 8291A GPIB Talker/Listener and a pair of INTEL 8293 GPIB Transceivers. |
| INDICATORS: | IDLE, LACS, TACS, ERR, BYTE, ACQ, WAIT, EVNT, PTY, and PWR - Nine front panel LEDs (RED, GREEN, and AMBER) provide visual acquisition and interface status. |
| MEMORY: | 512 k-bytes of SRAM |
| ACQUISITION TIME: | Real- and live-time clocks range from 16 μ s to 16777215.99 s and have 16 μ s resolution |
| ACQUISITION RATE: | 20,000 events/s |
| FIRMWARE: | The AIM-312 firmware provides a complete set of diagnostic messages and command interpreter that includes: Data Acquisition, Clear Memory, Set or Clear Control Flags, Integrate Rectangular Histogram Area, Integrate Circular Histogram Area, Set Numerical Format, Read Acquisition Time, Fast Block Upload, Fast Block Download. |
| SOFTWARE: | ORDELA Model OP-312 Dataview software for Windows is included. It is specifically designed to transfer, store, display, analyze and print dual-parameter data from the AIM-312. For further details see ORDELA OP-312 Dataview Specifications Sheet. |
| POWER: | +6 V at 800 mA |
| SHIPPING WEIGHT: | 2.5 kg |
| DIMENSIONS: | 6.8 cm wide, 22.1 cm high, and 24.6 cm long |



WARRANTY

ORDELA, Inc. warrants its products to be free from defects in materials and workmanship for twelve month after shipment. No other warranty is included. Specifically, no warranty of merchantability or fitness or a particular purpose is implied. ORDELA's liability under this warranty is limited to repairing or replacing the instrument at ORDELA's option. This warranty is void if the instrument is operated improperly, disassembled, or modified other than in the ORDELA laboratory.