

ORDELA MODEL AIM-204-A

DUAL TIMING SINGLE-CHANNEL ANALYZER

DESCRIPTION

The ORDELA Model AIM-204-A Dual Timing SCA is an electronic module designed for optimum processing of signals from a linear, RC- or LC-encoded position-sensitive proportional counter (PSPC). Interconnection of two AIM-204-A modules provides for signal processing with a two-dimensional PSPC. The Model AIM-204-A is packaged in a single-width Nuclear Instrument Module (NIM) and contains the following functional circuits:

- Two PASSIVE-FILTER AMPLIFIERS to condition the preamplifier output pulses of the PSPC for optimum timing and amplitude measurements. The gain and filter constants are set at the factory for the specific PSPC they are intended to operate with.
- One SUMMING AMPLIFIER to add the outputs from the filter amplifiers and measure the energy loss of each detected event independently of its position coordinate. It generates a SUM output available at a front panel BNC connector.
- One TIMING SINGLE-CHANNEL ANALYZER to discriminate against unwanted PSPC signals. Its discriminator levels are adjustable by front-panel controls. For each accepted signal it generates, a GATE output is available at a front panel BNC connector.
- Two TIMING DISCRIMINATORS to measure the zero-level crossing of each accepted output pulse from the filter amplifiers. It generates START and STOP outputs available at front panel BNC connectors.

With these circuits, the Model AIM-204-A contains all functions necessary for signal processing with a linear PSPC. It is the only module needed to interface the PSPC to a time-interval digitizer such as the ORDELA Model AIM-208. A single Model AIM-204-A replaces six separate NIMs, two external attenuators and many complex interconnections between these NIMs. It releases five BIN spaces. Reducing the number of switches, controls, and interconnections increases the reliability of the PSPC signal processing.

SPECIFICATIONS

INPUTS:	PREAMPLIFIER - Rear-panel, 9-pin Sub-D connector to send test pulses to the PSPC, transmits power to the preamplifiers, and connects the preamplifier outputs to the Model AIM-204-A inputs. PULSE GENERATOR - Rear-panel BNC connector enables sending test pulses to the PSPC, 100 Ω impedance, <100 ns rise-time, and >50 μ s fall to simulate a charge output from the PSPC.
OUTPUTS:	SUM - Front-panel BNC connector; bipolar pulses, 0 to +8 V peak amplitude, 100 Ω output impedance, factory set gain and dwell time to match PSPC operating conditions. GAIN - Front-panel BNC connector; 4 V amplitude, 100 Ω output impedance, leading edge coincident with zero-level crossing of valid SUM outputs, factory set dwell time to match PSPC operating conditions.

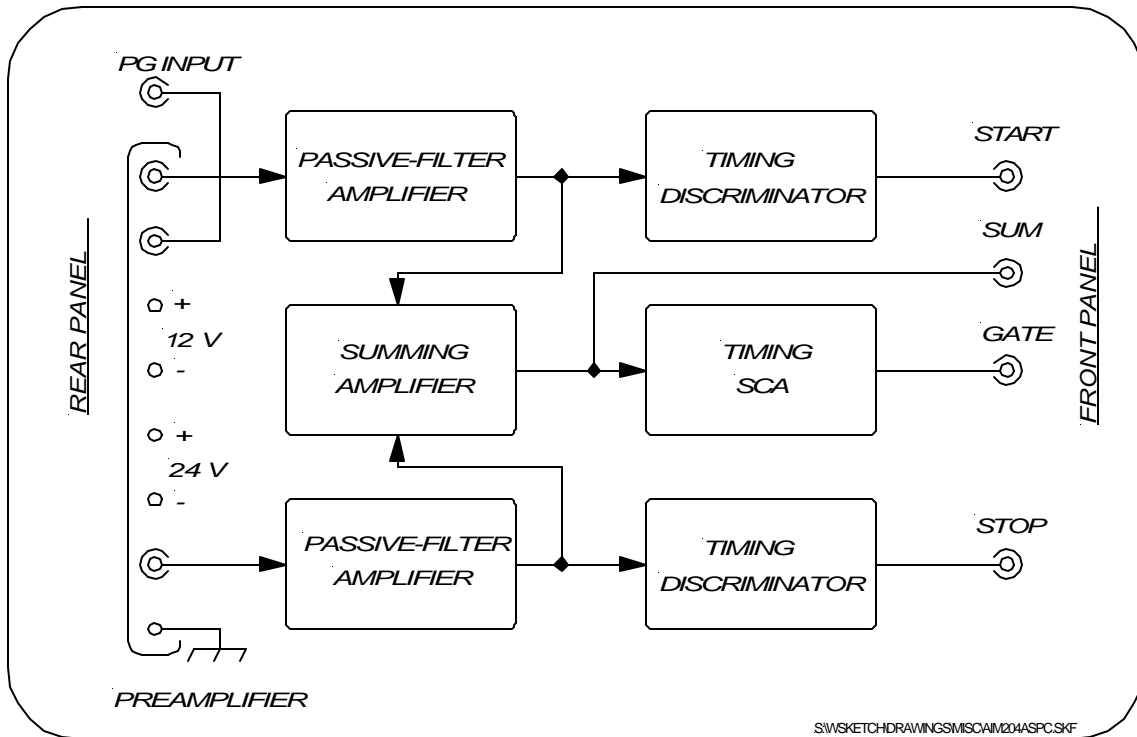
START and STOP - Front-panel BNC connectors; fast NIM pulses (-16 mA, 10 ns wide, 50 Ω termination required), factory set precision delays (<1 ns time walk for 10:1 input amplitude variations at 10 μ s dwell time), <0.01%/ $^{\circ}$ C drift for ambient temperature variations 0 to 50 $^{\circ}$ C

CONTROLS: UPPER LEVEL and LOWER LEVEL - Front-panel calibrated 10-turn potentiometer; 0 to 10 V discrimination.
TIMING - Start and stop channel walk adjustment (20-turn potentiometer) and 0/-20 dB toggle-switch activated, start and stop channel attenuators.

POWER: ± 6 V at 600 mA, ± 12 V at 150 mA, and ± 24 V at 80 mA

SHIPPING WEIGHT: 2.5 Kg

DIMENSIONS: 3.4 cm wide, 22.1 cm high, and 24.6 cm long



ORDELA MODEL AIM-204-A INTERCONNECTION DIAGRAM

WARRANTY

ORDELA, Inc. warrants its products to be free from defects in materials and workmanship for 12 months after shipment. No other warranty is included. Specifically, no warranty of merchantability or fitness for a particular purpose is implied. ORDELA's liability under this warranty is limited to repairing or replacing the product at ORDELA's option. This warranty is void if the product is operated improperly, disassembled, or modified other than in the ORDELA laboratory.