

ORDELA MODEL AIM-206 POSITION DECODER

DESCRIPTION

The ORDELA Model AIM-206 Position Decoder 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-206 modules enables position decoding with a two-dimensional PSPC. The Model AIM-206 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 pulse height measurement. 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 the SUM outputs 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 time of each accepted output pulse from the filter amplifiers.
- One TIME-TO-PULSE-HEIGHT CONVERTER (TPHC) to measure the interval between corresponding pulses from the timing discriminators. It generates the TPHC outputs available at a front panel BNC connector.

With these circuits, the Model AIM-206 contains all functions necessary for decoding the position coordinates from a linear PSPC. It is the only module needed to interface the PSPC to a multi-channel analyzer. A single Model AIM-206 replaces seven separate NIMs, two external attenuators, and many complex interconnections between these NIMs. It releases six 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, transmit power to the preamplifiers, and connect the preamplifier outputs to the Model AIM-206 inputs.
- PULSE GENERATOR - Rear panel BNC connector enables sending test pulses to the PSPC, 100 Ω input impedance, <100 ns rise-time, and > 50 μ s fall-time 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.
- GATE - 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.

TPHC - Front panel BNC connector; 100 Ω output impedance, 1.2 μ s dwell-time. Factory set conversion gain and time offset range provide output pulses of 0 to +8 V amplitude in response to valid events detected over the whole length of the PSPC.

CONTROLS:

UPPER LEVEL - Front panel, 10-turn potentiometer; 0 to 10 V calibration of the upper discrimination level of the SUM output pulses.

LOWER LEVEL - Front panel, 10-turn potentiometer; 0 to 10 V calibration of the lower discrimination level of the SUM output pulses.

WALK ADJ. - Two front panel, 20-turn potentiometers; and two toggle switches activating 0/-20 dB attenuators for independent timing calibration of the START and STOP channels.

POWER:

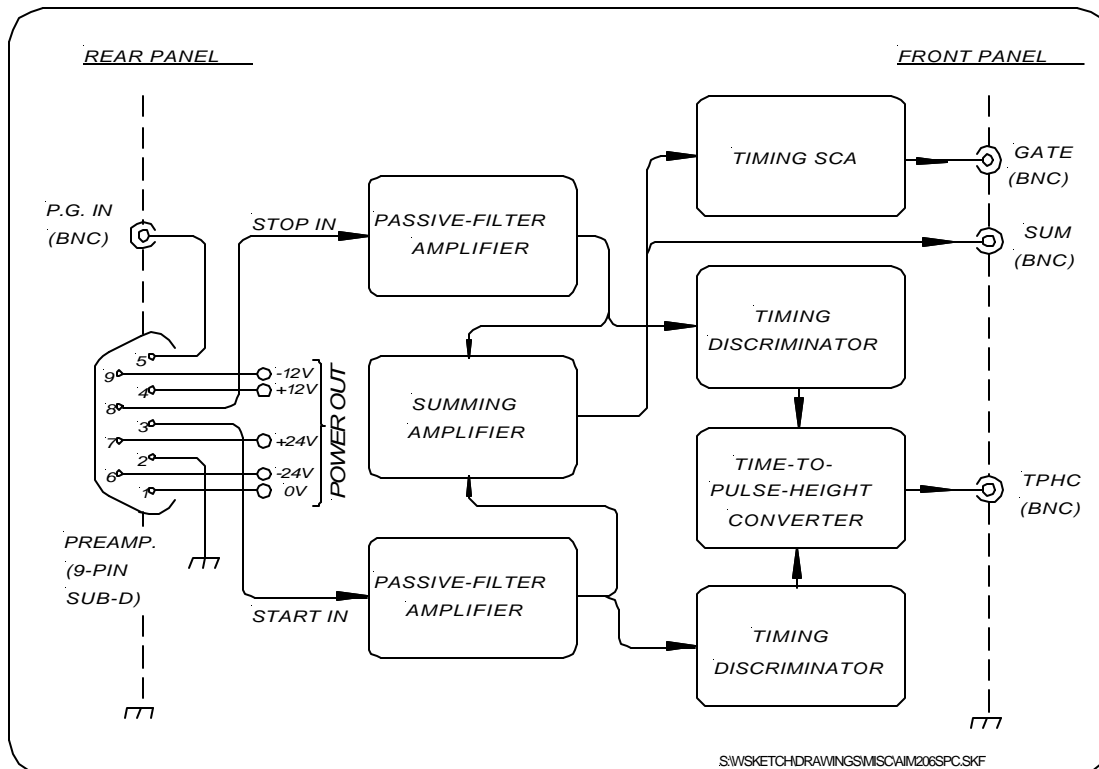
± 6 V at 600 mA, ± 12 V at 150 mA, and ± 24 V at 80 mA

SHIPPING WEIGHT:

2.5 kg

DIMENSIONS:

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



ORDELA MODEL AIM-206 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.