

ORDELA MODEL 2200X

POSITION-SENSITIVE PROPORTIONAL COUNTER

DESCRIPTION

The ORDELA Model 2200X is a two-dimensional, position-sensitive proportional counter (PSPC) designed and manufactured by ORDELA, Inc. for applications in small-angle x-ray scattering experiments with low-energy (6 to 17 keV) x-rays.

The Model 2200X uses all-metal anode and cathode wire planes for resistance-capacitance position encoding and counting.¹ The active volume is only 1.3 cm thick to reduce parallax distortion. The counting gas is Xe-CO₂ at 760 torr pressure for high detection efficiency and good spatial resolution. The window is 0.6 mm thick beryllium to increase x-ray transmission.

The Model 2200X includes four low-noise preamplifiers and a high-voltage distribution and filtering circuit. Analog and digital data processing systems for position decoding and background discrimination are available from ORDELA, Inc. upon request. For best signal processing with the Model 2200X, we recommend two ORDELA Model AIM-206 Position Decoders for pulse shaping, timing, and pulse-height discrimination, a NIM/BIN power supply and a 0 to 5 kV adjustable NIM high-voltage power supply for biasing. We recommend the ORDELA Model AIM-312 Dual-parameter Analyzer and Dataview Software for display and imaging with a personal computer.

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1. C. J. Borkowski and M. K. Kopp, IEEE Trans. Nucl. Sci. NS-19 (1), 161 (1972).

SPECIFICATIONS

ACTIVE AREA:	20 cm x 20 cm
SPATIAL RESOLUTION:	128 x 128 pixels (picture elements)
PIXEL SIZE:	1.56 mm x 1.56 mm
THERMAL NOISE:	1 mm (fwhm) for an avalanche charge of 1.6 pC
DETECTION EFFICIENCY:	85% for 8-keV x-rays
COUNT-RATE CAPABILITY:	3 x 10 ⁴ photons per second for 10% coincidence losses (10 ⁵ photons per second maximum)
LINEARITY:	2% integral, 15% differential
PSPC BIAS VOLTAGE:	. 3.5 kV
PREAMPLIFIER POWER:	±24 V at 100 mA (four preamplifiers)

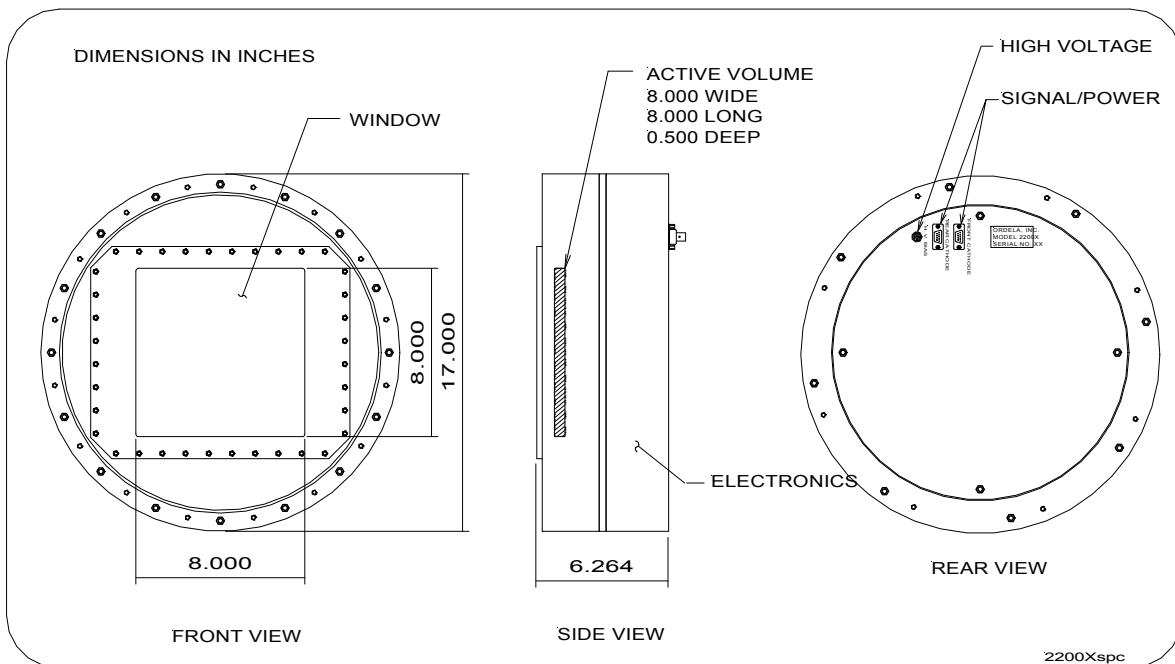
COUNTER CONSTRUCTION

BODY MATERIAL:	Aluminum 6061
WINDOW MATERIAL:	0.6-mm thick beryllium (hot rolled)
COUNTER VOLUME:	20 cm x 20 cm x 1.3 cm
COUNTING GAS:	Xe-CO ₂ at atmospheric pressure
OVERALL DIMENSIONS:	44 cm diameter x 16 cm height
SHIPPING WEIGHT:	60 kg, (40 kg net)

ACCESSORIES

Standard accessories, delivered with the Model 2200X at no extra cost are: (1) Four low-noise preamplifiers and a high-voltage filter and distribution network which are installed and interconnected at the factory. (2) 3-m-long (10 ft) cables for interconnection of the Model 2200X with two ORDELA Models AIM-206 and the high-voltage power supply.

Optional accessories are: (1) A complete package of position decoding electronics for the Model 2200X. This package may be designed to customer specifications and will be shipped as a factory tested and calibrated system. (2) other lengths interconnection cables for the Model AIM-206. (3) adapter cables and connectors permitting interconnection of the Model 2200X with other than ORDELA's time decoding instruments. (4) acrylic mounting flange and 2-mm-thick beryllium window allowing use of the window as a vacuum interface (Model 2201X).



ORDELA MODEL 2200X OUTLINE AND DIMENSIONS

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.