

ORDELA MODEL 1100XF

POSITION-SENSITIVE PROPORTIONAL COUNTER

DESCRIPTION

The ORDELA Model 1100XF is a linear, position-sensitive proportional counter (PSPC) designed and manufactured by ORDELA, Inc. for applications in small-angle scattering experiments with low-energy (2 to 6 keV) x-rays.

This PSPC uses resistance-capacitance position encoding, a method known for its reliability and simplicity of operation [1]. The active volume is only 8 mm deep to reduce parallax distortion. It operates as a flow counter with P-10 (Ar-CH₄) at atmospheric pressure. The window is aluminized mylar (.8 mg/cm²) to reduce window absorption and scattering.

The Model 1100XF includes two low-noise preamplifiers and a high-voltage filtering circuit. Analog and digital data processing instrumentation for position decoding and background discrimination are available from ORDELA, Inc. upon request. We recommend the ORDELA Model AIM-206 Position Decoder NIM for optimum pulse shaping, timing, pulse-height discrimination, and imaging with ORDELA's time-encoded PSPCs.

1. C. J. Borkowski and M. K. Kopp, J. Appl. Crystallogr. 11, 430 (1978).

SPECIFICATIONS

ACTIVE LENGTH:	100 mm
SPATIAL RESOLUTION:	660 pixels (picture elements)
PIXEL SIZE:	150 μ m
THERMAL NOISE:	100 μ m (fwhm) for an avalanche charge of 1 pC, measured with the Model AIM-206
DETECTION EFFICIENCY:	50% for 2 keV x-rays, 20% for 3 keV x-rays, and 30% for 6 keV x-rays
COUNT-RATE CAPABILITY:	5 x 10 ³ x-rays per second for 10% coincidence losses, maximum count rate 5 x 10 ⁴ x-rays per second
LINEARITY:	2% integral, 15% differential
BIAS VOLTAGE:	. 1.4 kV (consult calibration sheet for exact bias voltage)
PREAMPLIFIER POWER:	\pm 12 V at 40 mA.

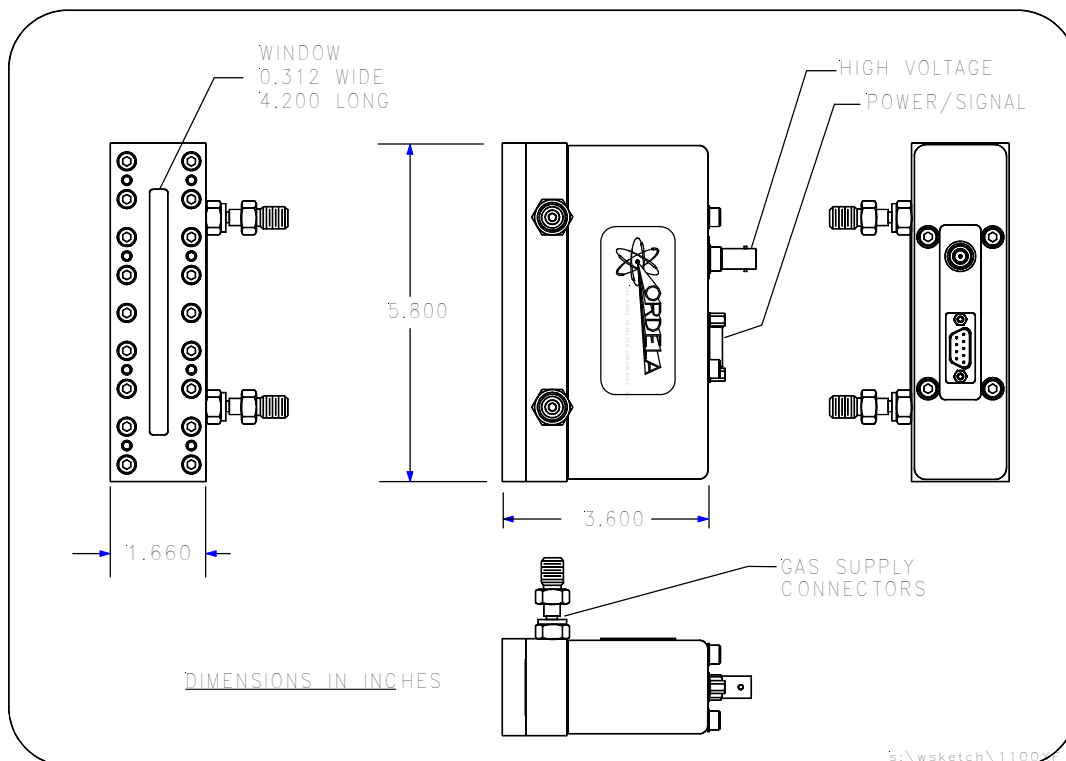
COUNTER CONSTRUCTION

BODY MATERIAL:	Aluminum 6061
WINDOW MATERIAL:	Aluminized mylar (0.8 mg/cm ²)
COUNTER VOLUME:	10 cm x 0.8 cm x 0.8 cm
COUNTING GAS:	P-10 (Ar-CH ₄) gas flow at 760 torr
OVERALL DIMENSIONS:	15 cm long, 4 cm high, 9 cm thick.

ACCESSORIES

Standard accessories, delivered with the Model 1100XF are: (2) Two low-noise preamplifiers (ORDELA Model VS-03) and a high-voltage filter and distribution network which are installed and interconnected at the factory. (1) One 3-m-long (10 ft) multi-wire, shielded cable for interconnecting the Model 1100XF with an ORDELA Model AIM-206 or AIM-204-A position decoder module. (1) One 3-m-long (10 ft) coaxial, high-voltage cable for interconnecting the Model 1100XF with the high-voltage power supply.

Optional accessories are: (1) A complete package of position decoding electronics for the Model 1100XF. This package may be designed to customer specifications and will be shipped as a factory tested and calibrated system. (2) Customer specified lengths of interconnection cables for the Model AIM-206 or AIM-204-A and the high-voltage power supply. (3) The ORDELA Model AD-01 image inverter, a passive module designed to exchange the $x = 0$ and $x = L$ coordinates of the position display. (4) Adapter cables and connectors permitting inter-connection of the Model 1100XF with other than ORDELA's time decoding instruments. (5) Adapter and transition flanges for mounting the Model 1100XF PSPC in customer specified installations.



ORDELA Model 1100XF 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.