

ORDELA MODEL 2651N

POSITION-SENSITIVE PROPORTIONAL COUNTER

DESCRIPTION

The ORDELA Model 2651N is a large-area, position-sensitive proportional counter (PSPC) designed and manufactured by ORDELA, Inc. for applications in small-angle neutron scattering research.

The Model 2651N uses all-metal anode and cathode wire planes for resistance-capacitance position encoding of thermal neutrons.¹ The active volume has a square area of 64 cm x 64 cm. It is 4.5 cm deep to reduce parallax distortion. The counting gas is $^3\text{He-CF}_4$ at 120 kPa for high neutron detection efficiency, and low gamma-radiation cross-section.² The Model 2651N is designed for operation in a vacuum flight path.

The counter is equipped with four low-noise preamplifiers, a high-voltage distribution and filtering circuit, and a gas purifier for extended lifetime. Analog and digital data processing systems for position decoding and background discrimination are available from ORDELA, Inc. upon request. For data processing, we recommend the ORDELA Models AIM-206 Position Decoder and AIM-312 Dual Parameter Analyzer. The Model AIM-312 interfaces through an IEEE-488 GPIB for computer data display. A 0 to 5 kV adjustable NIM high-voltage power supply and an optional tail-pulse generator complete this system.

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1. C. J. Borkowski and M. K. Kopp, J. Appl. Crystallogr. 11, 430 (1978).
 2. M. K. Kopp et al., Nucl. Instrum. Methods 201, 395 (1982).

SPECIFICATIONS

ACTIVE VOLUME:	64 cm x 64 cm area, 4.5 cm depth
SPATIAL RESOLUTION:	64 x 64 pixels (picture elements)
PIXEL SIZE:	1 cm x 1 cm
SPATIAL UNCERTAINTY:	1 cm (fwhm)
DETECTION EFFICIENCY:	71% for 5 Å neutrons 52% for 3 Å neutrons
COUNT-RATE CAPABILITY:	10^4 neutrons per second for 10% coincidence losses (10^5 neutrons per second maximum)
LINEARITY:	2% integral, 15% differential
BIAS VOLTAGE:	-4000 V
PREAMPLIFIER POWER:	±24 V at 100 mA

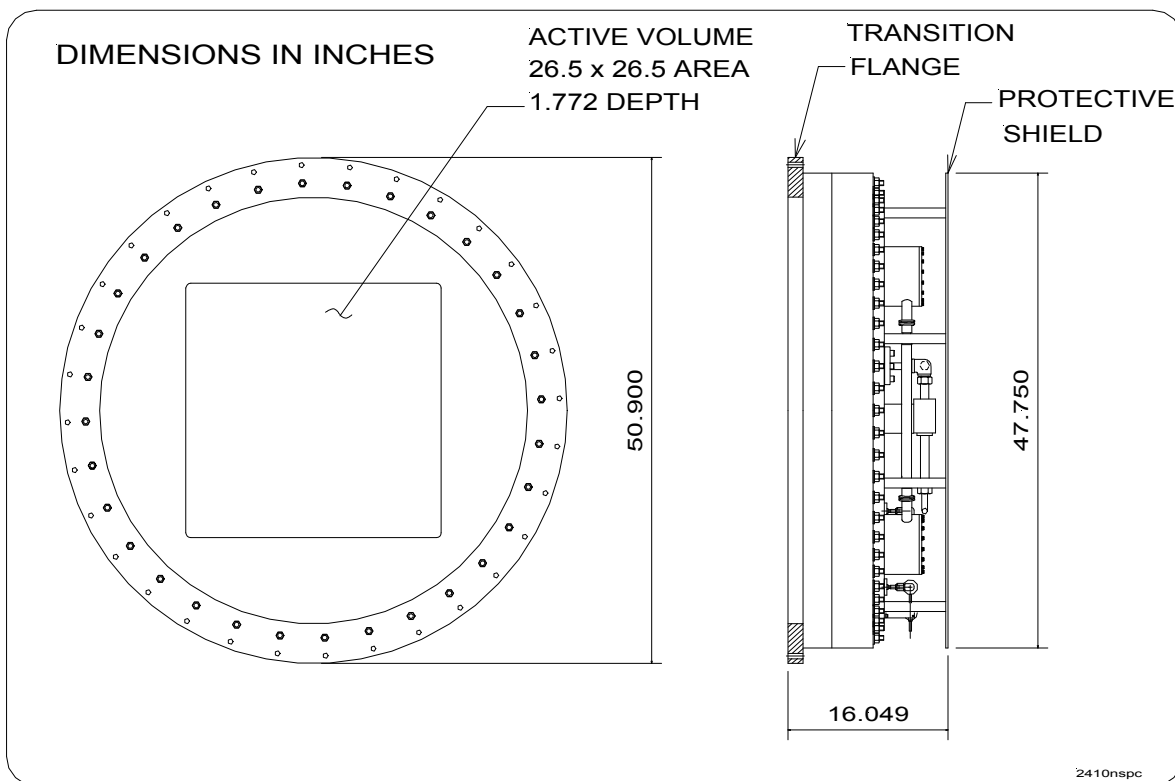
COUNTER CONSTRUCTION

BODY AND WINDOW:	aluminum 6061-T6
WINDOW THICKNESS:	1.25 cm
OVERALL DIMENSIONS:	121.2 cm diameter, 40.8 cm height
SHIPPING WEIGHT:	-800 kg

ACCESSORIES

Four (4) low-noise, voltage-sensitive preamplifiers (ORDELA Model VS-01) and a high-voltage filter and distribution circuit, installed and interconnected at the factory. A molecular-sieve gas purifier installed for extended lifetime and gas purity. All cables necessary for interconnection of the Model 2651N to the high-voltage power supply and the AIM-206 (or similar signal processing modules) are provided. Standard cable length is 15 m (50 ft.), other length cables provided upon request.

ORDELA, Inc. offers a complete package of position decoding electronics optimized for operation with the Model 2651N PSPC. This package may be designed to customer specification and will be shipped as a factory tested and aligned system.

**ORDELA MODEL 2651N 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.