

Accessories

Beam stop with integrated pindiode



RECTANGULAR
4 x 3.5 mm²

Smallest qmin possible along equator and meridian
Active area of the diode offset from center beam stop

CIRCULAR
4.5 mm²

Smallest circular beam stop
Active area of the diode offset (0.4 to 1 mm) from center beam stop

CIRCULAR
5 mm²

Standard size
Active area of the diode near center of the beam stop for ease of alignment (offset 0 to 0.5 mm)

Knowledge of the dose absorbed during an experiment is becoming increasingly important. For this purpose Xenocs proposes a beamstop with an integrated X-ray sensor. X-ray sensor is a pindiode detector system designed for both in-house (rotating anode and sealed tube) and synchrotron sources. With the 4 selectable gains, the detector has a large dynamic range (>10⁹) and can be immediately used in the direct beam at flux levels >10¹² photons / sec.

Three different beam stop sizes are available with various benefits (see Fig. 1). Larger sizes can be proposed upon request.

As shown on Fig. 2, beam stop diode can be mounted on a 1.5mm stainless steel tube with center wire lead or delivered with double free hanging wire leads. A preamplification stage is placed nearby the beamstop to prevent electronic noise. Beamstop can be delivered ready to be connected for self vacuum set-up on customer site.

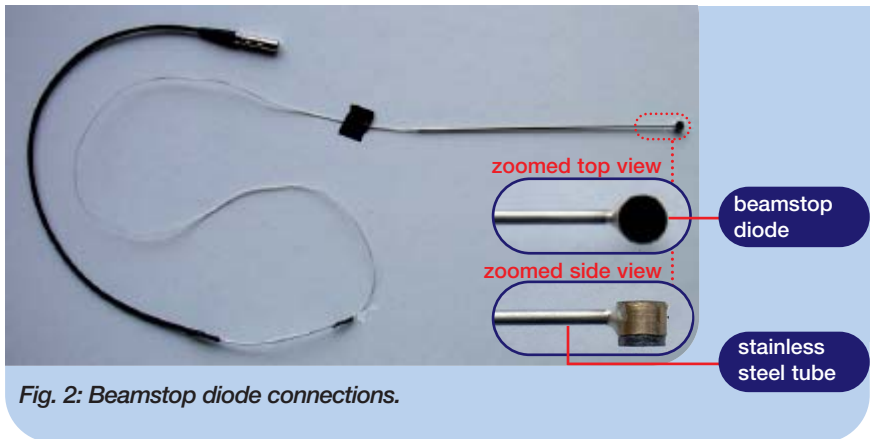


Fig. 2: Beamstop diode connections.

Technical Data

Subject to technical changes without notice

Pindiode	
• Detector Size	2 x 2 mm ²
• Active area	1.8 x 1.8 mm ²
• Pre-amplifier	gain 1, 10, 100, 1000
• Voltage output (V _{out})	0 - 14 (F _{out} only valid for V _{out} = 0 - 5V)
• Frequency output (F _{out})	0 - 500 kHz
• Error of Linearity	< 1%
• Measurable flux (8 keV)	10 ⁵ -10 ⁹ phs/second (can be extended with attenuator)
• Measurable flux (8 keV) for synchrotron settings	10 ³ -10 ¹² phs/second (can be extended with attenuator)
• Usable energy range	4 - 20 keV
• Dark current signal	<0,05 V at gain = 1000
Electronics module	
• Dimensions - Electronics module	15 x 9 x 22 cm
• Weight	1,2 Kg

Fig. 1 : Available beam stop sizes.

The beamstop unit is also proposed as a full system and can be housed in a large vacuum chamber. In this case, the beam stop is mounted on a suspended frame with motorized or manual X-Y translations (travel range +/-12mm) for easy alignment (see Fig. 3).

As an alternative the beam stop can be mounted on a rod allowing adjustment in one plane only but with extended travel range (see Fig. 4).

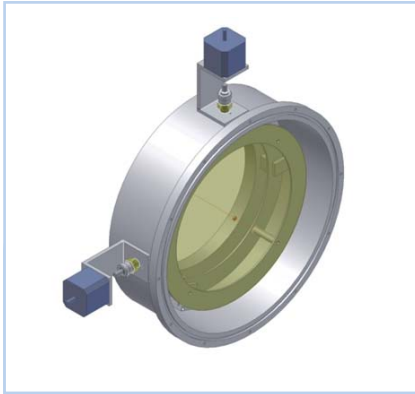


Fig. 3: Frame with XY translations



Fig. 4: Frame with X translations

The detector electronic (see Fig. 5) contains connections for signal input and output, panel voltmeter, gain selection, and a power switch. The detector module has a 2-meter long shielded multi-conductor cable with a miniature 4-PIN push-pull connector at the end. Always place the electronics module close to the detector.

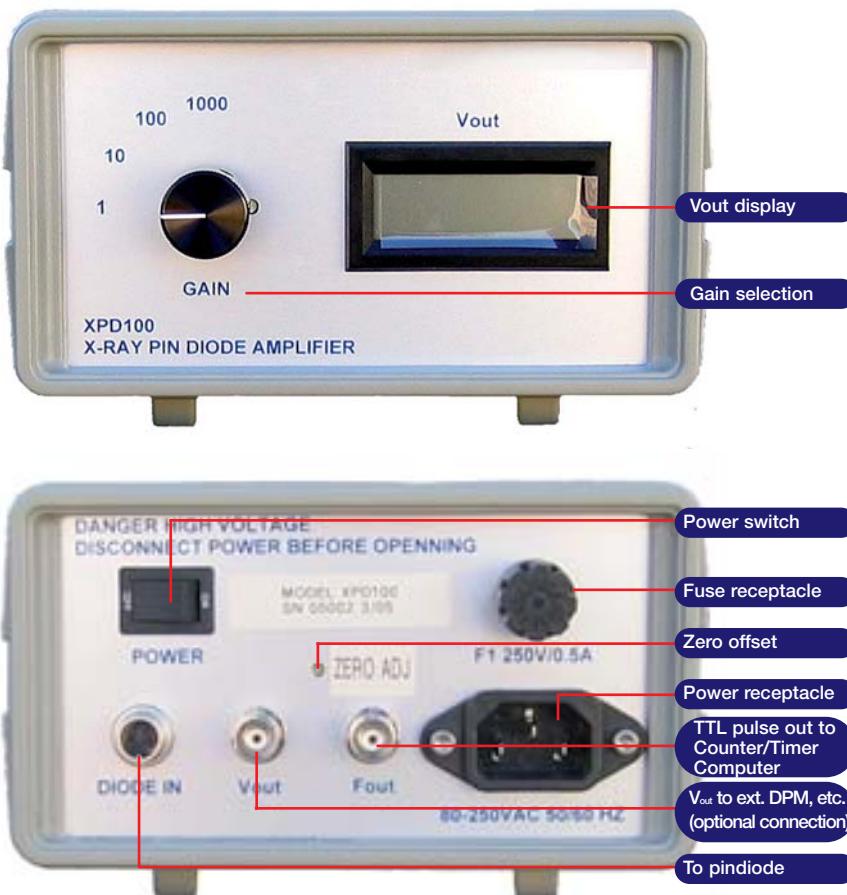


Fig. 5: Front and back side of the amplifier / converter unit

Principal Features

- Integrated preamplifier inside detector housing improves signal to noise ratio and stability
- Precision instrumentation amplifier provides calibrated gain factors within 1%
- Adjustable background compensation allows elimination of zero-offset in flux scaling
- Precise Si thickness control leads to near uniform response from unit to unit
- Linearity better than 1% over entire range of response with background subtraction

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