

The LO-AX provides optimum peak-to-background ratio from 10 to 400 keV on large-area samples. It is also ideal for *in vivo* actinide monitoring using L x rays.

- Large active area
- 36-, 51-, 60-, and 70-mm diameter available
- Ideal for *in vivo* actinide monitoring
- Excellent for uranium monitoring
- PopTop flexibility
- ULTRA-thin rugged Ion-implanted pointer contact sensitive at front and sides

The LO-AX is a large active area, "short" coaxial detector which supplies the best possible energy resolution for the energy range from 3 to 400 keV.

A typical application for the LO-AX is *in vivo* quantitative actinide monitoring. This measurement, frequently performed in the past using phoswich scintillation counters, is now routinely performed using a LO-AX, usually in a low-background cryostat.

The LO-AX detector element length, about one-half that of the diameter (Fig. 1), provides a special, low-capacitance coaxial geometry. The result is 370-eV energy resolution at 5.9 keV for the 51-mm diameter LO-AX detector. **Typical measured resolution for 13- to 17-keV x rays is ~400 eV.** Higher efficiency is available with the 60-mm and 70-mm-diameter LO-AX detectors.

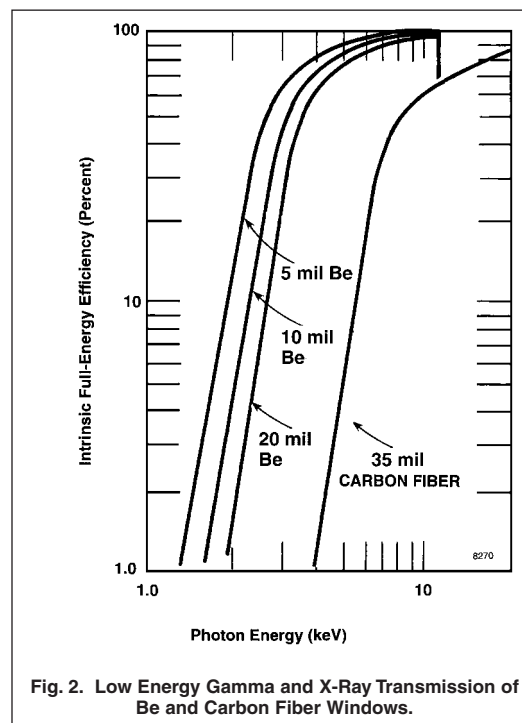
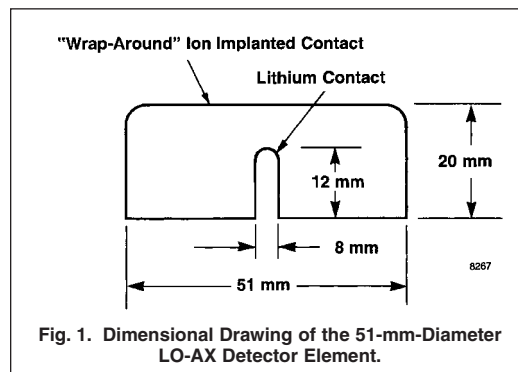
Because of their good energy resolution at low energies LO-AX detectors, particularly in low-background cryostats, are ideal for quantifying plutonium. In most laboratories 70-mm diameter LO-AX have become the detector of choice because of their higher efficiency and sensitivity. An additional benefit of the 70-mm detector is a net reduction in Compton background due to the increased probability that a high energy event will experience a multiple interaction in the larger detector, and thus generate a count in a channel well above the Pu peak.

The LO-AX detector's wide energy range results in high efficiency for the quantification of uranium.

The LO-AX is equipped with an automatic, high-voltage shutdown capability.

LO-AX detectors are available with a choice of Be or carbon fiber window.

Transmission data is shown in Fig. 2.



LO-AX Low-Energy Photon Detector

Ordering Information

Supplied in "classic" PopTop capsule. These capsules are compatible with P4 cryostats.

If dimensional considerations are critical, contact factory. For non-PopTop remove the "P" from the model number.

A complete detector assembly requires a cryostat and a dewar.

| Model No. | Detector Diameter (mm) | Dimensions | | Energy Resolution FWHM ** | |
|--------------|---------------------------|-------------------------|------------|---------------------------|------------|
| | | Area (mm ²) | Depth (mm) | at 5.9 keV | at 122 keV |
| LX-36300-15P | 36 | 1000 | 15 | 300 | 550 |
| LX-51370-20P | 51 | 2000 | 20 | 370 | 625 |
| LX-60450-30P | 60 | 2800 | 30 | 450 | 700 |
| LX-70450-30P | 70 | 3850 | 30 | 450 | 725 |

Options

- C For PopTop Capsule with Carbon Fiber Window at no extra charge, add "-C" to the model no.
[e.g., LX-36300-15P-C]
- RB Reduced background PopTop capsule with Carbon Fiber endcap, add "-RB" to the model number
[e.g., LX-36300-15P-RB]
- RB-B Reduced background PopTop capsule with Be window in Cu endcap, add "-RB-B" to the model number
[e.g., LX-36300-15P-RB-B]

SMART-1-N SMART-1 detector option for negative bias detector. To order, add SMART-1-N as a separate line item.

* All LO-AX PopTop detector capsules include sealed detector element, preamplifier, high-voltage filter, and a 0.02 inch thick Be window with diameter \geq that of the detector.

** FWHM = Full Width at Half Maximum; total system resolution for a source at 1000 counts/s measured in accordance with ANSI/IEEE Std. 325-1996, using ORTEC standard electronics.

Specifications subject to change
110507

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