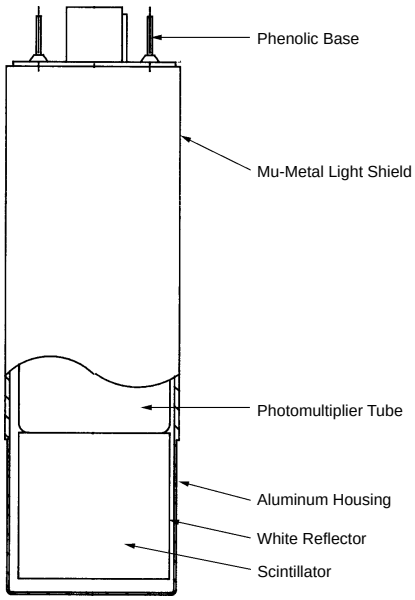
monoline

Scintillation Detector with Integrally Mounted PMT

advantages

- Compact assembly
- Direct PMT to crystal mounting
- PMT is matched and tested with scintillator
- Consistent, superior energy resolution
- Resolutions for individual detectors can be guaranteed



In the Bicron *Monoline* assemblies, the photomultiplier tube is optically coupled directly to the scintillator. The scintillator is mounted in a container (usually of aluminum), and a mu-metal magnetic/light shield is fitted over the PMT. The scintillator container and mu-metal shield are sealed together to form a low-mass and light-tight housing for the detector.

This design usually yields better and more consistent pulse height resolution than others. Monolines are, therefore, the detectors of choice for spectroscopy and radioisotope assay.

options

- Scintillator containers of low-background stainless steel or copper
- Thin aluminum or beryllium radiation entrance windows
- PMTs selected for low background, premium resolution, fixed HV use, or gain matching
- Special flanges, mounting fixtures or other modifications
- Integrated, low-background voltage divider/preamp bases
- Square, hexagonal or other cross-sections
- Premium resolution assemblies

other configurations

- Waterproofed assemblies
- Ruggedized and high-temperature detectors
- Assemblies using thin crystals for low-energy gamma and x-ray detection

design notes

- Some configurations, especially those employing thin scintillators, may require light pipes between the scintillator and PMT. The light pipes diffuse the propagated light to overcome non-uniformity effects in the PMT photocathode.
- The detector package is hermetically sealed when NaI(Tl) or another hygroscopic scintillator is used.
- The maximum scintillator size is 127mm (5") in diameter or on the diagonal.

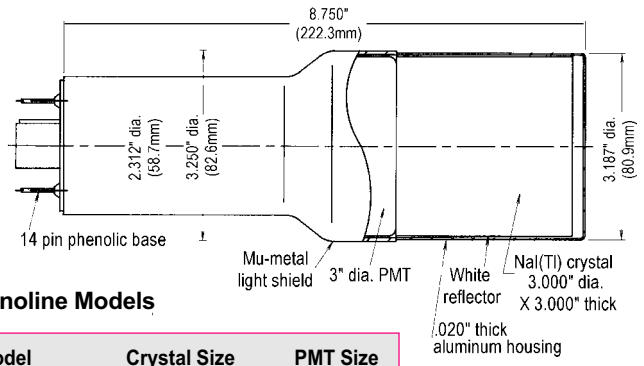
monoline... Scintillation Detectors with Integrally Mounted PMT

popular configurations

solid

Commonly used for gamma ray spectroscopy, radon canister counting, thyroid uptake measurements, health physics.

Model 3M3/3 shown



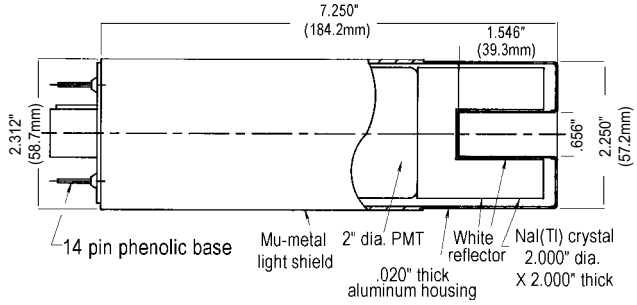
Typical Solid Crystal Monoline Models

Model	Crystal Size	PMT Size	Model	Crystal Size	PMT Size
1M1/1.5	1" x 1"	1.5"	2M2/2	2" x 2"	2"
1M2/2	1" x 2"	2"	3M2/3	3" x 2"	3"
1.5M.5/2	1.5" x .5"	2"	3M3/3	3" x 3"	3"
1.5M1/2	1.5" x 1"	2"	4M4/5	4" x 4"	5"
1.75M2/2	1.75" x 2"	2"	5M5/5	5" x 5"	5"

end well

The most efficient configuration; for radioisotope assay, wipes, sample counting.

Model 2MW2/2 shown



Typical End Well Crystal Monoline Models

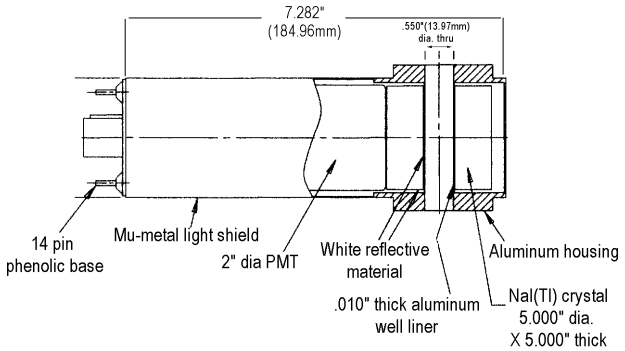
Model	Crystal Size	Well Size	PMT Size
2MW2/2	2" x 2"	see table	2"
3MW3/3	3" x 3"	see table	3"
3MW4/3	3" x 4"	1.25" x 3"	3"

Well Sizes	
2MW2/2	3MW3/3
.625" x 1.437"	.625" x 1.625"
.656" x 1.546"	.656" x 2.063"
.787" x 1.378"	1" x 2"
.75" x 1.437"	1.125" x 2"
1" x 1.546"	1.187" x 2.062"
1.125" x 1.437"	1.333" x 2"

through-side well

An ideal configuration when space is limited; the second most efficient configuration; used in radioisotope assay and fuel rod monitoring.

Model 2MSW2/2 shown
(.75" ID well)



Manufacturer reserves the right to alter specifications.

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