

Alpha Spectra, Inc. Large Volume Detectors Data Sheet

Alpha Spectra has been providing large volume detectors to numerous scintillation detection applications for over twenty years. These detectors have been used in applications that include: Homeland Security, Oil and Gas Exploration, Health Physics Applications Monitoring and Surveying.

The Alpha Spectra detector design satisfies specifications that challenge the limits of detector technology. As part of our exceptional design capabilities include detectors that have met strict requirements needed to qualify for unmanned space flight.

Our dependable designs have been proven to stay on the job with minimum or no down time due to detector failure. Our detectors that have been used in aerial geophysical exploration have remarkable MTBF (Mean Time Between Failure) statistics. In these and other ruggedized applications we recommend an all-welded, evacuated stainless steel detector assembly that is reliable in extreme shock and vibration environments that these large detectors are often time used.

For less rugged applications where sensitivity to low energy photons is important we offer a ruggedized aluminum assembly.

We also offer outrigger assemblies for our detectors. These assemblies can be used as an interface between our detector and the customer's shock and vibration system. See figure 2.

The key component of the detector, the NaI(Tl) crystal starting material is purified in a controlled environment at our facility. The NaI(Tl) crystals are grown in large ingots using our in house proprietary growth techniques. These ingots are then cut and machined at our plant located in Grand Junction, Colorado.

Our facility also has extensive metalworking capabilities. These capabilities allow us to control quality, cost and delivery.



Figure 1. Homeland Security Configurations. Shown here 4"x4"x16", 2"x4"x16" and 6"x6"

Delivering a quality product is our highest priority. Our in process and final testing ensures that ASI will deliver a detector that meets customer specifications.

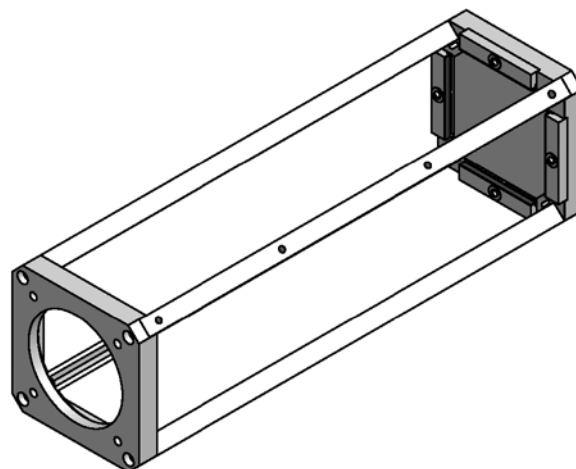


Figure 2. Outrigger assembly for a 4"x4"x16" detector.

Detector Specifications

Detector Style:	Large Volume Detectors
Crystal Materials:	NaI(Tl), CsI(Na), CsI(Tl)
Model Numbers and Size:	8D16X64A5/3.5 (2"x4"x16"); 16D16X64/3.5 (4"x4"x16"); 36D36/5 (6"x6"), custom designs are also available.
PMT:	Typically 3.5", options include Electron Tubes, Hamamatsu or ADIT
Shock and Vibration Loading:	To 5g static; vibrations of up to 0.5 g _n over all orthogonal axes, over a frequency range from 10 Hz to 150 Hz
Operation Range:	-30°C to +50°C. (Max rate of temp. change is 8°C/hr.)
Energy Resolution at 662 KeV:	NaI(Tl) 6.5% - 8.0% (typical) depends on design configuration.
Crystal Housings:	Aluminum, stainless steel
Electronic Configurations:	Options include - 14 pin base, voltage divider with power base or preamp configuration.
Connectors:	BNC (signal) and SHV (high voltage)

Please refer to ASI's Warranty Statement for additional information.

Alpha Spectra has manufactured over 100,000 detectors in becoming the world's second largest producer of NaI(Tl) scintillation crystals. We are proud of the manner in which our staff has worked together in developing a technology-based company with world class expertise.

Alpha Spectra, Inc. is the only American-owned company in the industry that has its own purification and growth processes. Our manufacturing process begins with exceptionally clean starting material. This material is processed using a growth technique that has been developed in house. Our high-quality detectors are assembled utilizing techniques that have been developed with over 100 years of combined working experience. Contact Alpha Spectra, Inc. for your scintillation detector requirements and be assured that you will get personal attention.

