

Scintillation Detectors for High Energy Radiation



Detectors without a Housing

Some scintillation materials can be used without a housing, such as for example YAG:Ce, YAP:Ce, BGO, LuAG:Ce, etc. Crytur produces such detectors and these find application in detection of high energy ionization radiation. Application of a reflective paint is a recommended option for these detectors. The detectors are mostly used for the detection and energetic spectroscopy of Gamma rays. In some cases they are also used for the detection of high energy particles.



Detectors with no housing

Standard Line Detector Assemblies

The assembly includes a scintillation crystal housed in an aluminium housing (steel or copper options also available) with a glass window. These detectors are designed to be externally coupled to an appropriate photomultiplier tube. Standard and end well configurations are produced. The detectors are widely used for general gamma ray counting and for spectroscopy in the range of 15 keV to 5 MeV.



Detectors with housing

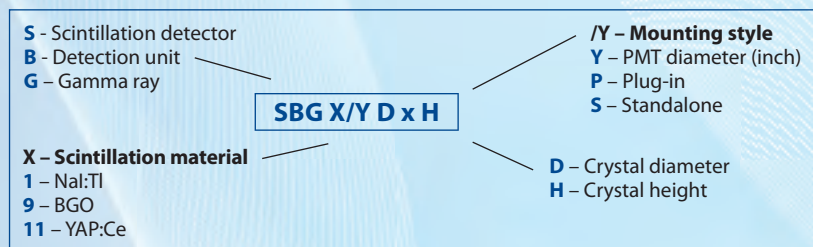
Detection Units

Crytur produces high-quality detection units for gamma ray detection and spectroscopy. The detection unit consists of a scintillation crystal optically coupled to a photomultiplier tube (PMT). The crystal and PMT are mounted into a light-tight housing making a plug-in or standalone unit which includes a voltage divider. The PMT is shielded from external magnetic fields by MU metal shielding.

AVAILABLE SCINTILLATION MATERIALS:

- NaI:TI – for best energy resolution and medium detection efficiency
- BGO – for highest detection efficiency
- YAP:Ce – for fast and high count rate measurements

NOMENCLATURE:



AVAILABLE TYPES:

- SBG 1/1.25S 1' x 1'
- SBG 1/2S 2' x 2'
- SBG 1/3S 3' x 3'
- SBG 1/3P 100x100x400
- SBG 9/1P 1' x 1.25'
- SBG 9/2P 2' x 2'
- SBG 9/3P 3' x 3' Other dimensions or modifications can be designed on request.



Detection units



Detection Matrices

Detection matrices and bars can be used for position sensitive detection. YAP:Ce, YAG:Ce, LuAG:Ce, BGO and others are scintillation materials used for this purpose. The size of detection elements ranges from several tenths of mm up to several mm depending on the scintillation material and on the construction of the array.