Radiation Sensor Board for Arduino + Geiger Tube

Produktkode: 826
Tilgjengelighet: 1
Custom Field 5 (Location): X
Send SMS etter pris: 91166668

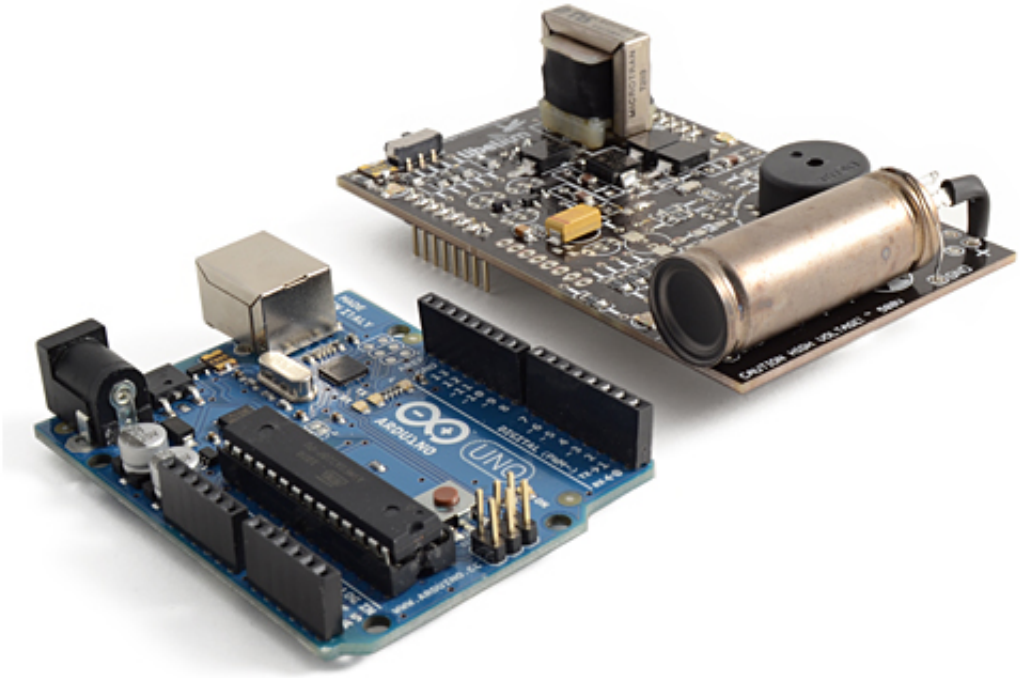
Short Description
Radiation Sensor Board for Arduino + Geiger Tube

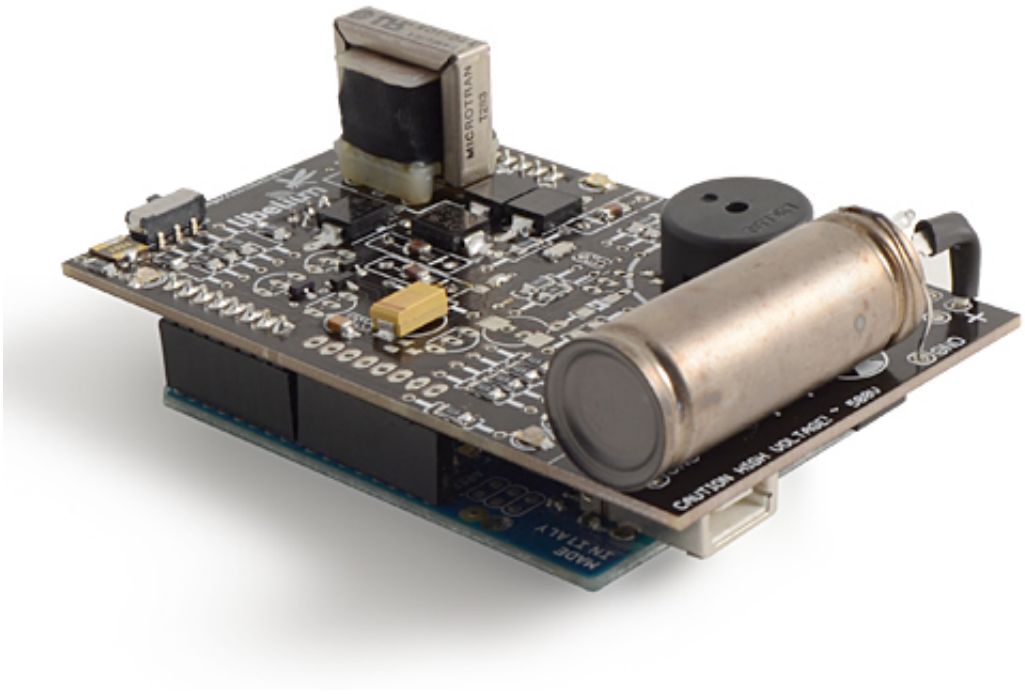
Beskrivelse

Geiger counter for Arduino to measure the level of radiations

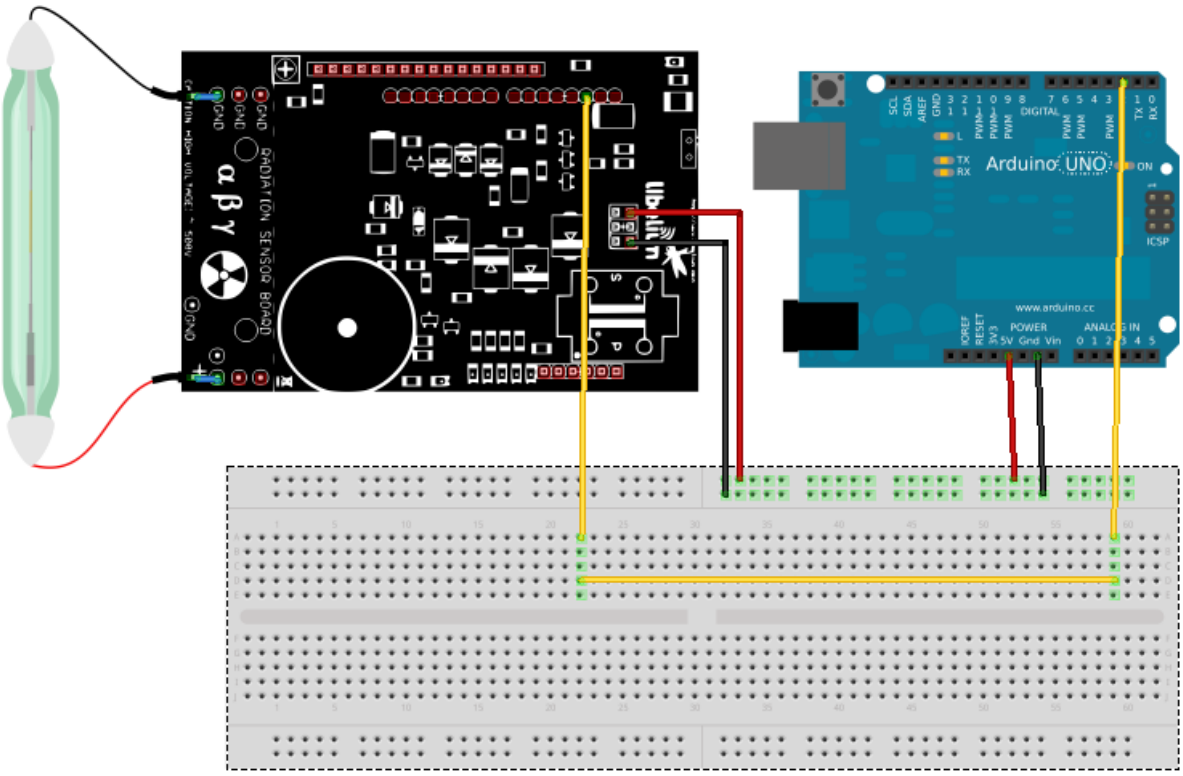
This Arduino Shield is compatible with the Arduino Uno SMD board. Build a true Geiger counter using this Arduino Shield to measure radioactivity. Radiations that are measured by the Geiger tube supplied with this Arduino Shield are the beta and gamma radiations. This is possible to use another Geiger tube with this Arduino Shield in order to measure other radioactivity such as alpha radioactivity.

The two following pictures show the Radiation Arduino Shield and an Arduino board.





The following picture shows the mounting schema for the Radiation Shield for Arduino.



Displaying the level of radioactivity measured using the Radiation Arduino Shield

Three methods for displaying the radioactivity measurement are proposed:

- The conventional method, ie by sizzling with a piezo buzzer
- Using red/green LED
- Using the LCD screen of the Radiation Shield for Arduino. This is possible to display the number of counts per minutes (cpm) and the equivalent absorbed energy levels in Servants (µSV/h).

Technical specifications of the Geiger tube that measures radiation

The technical specifications of the Geiger tube are as follows:

- Manufacturer: North Optic
- Reference : J305ß
- Radiations that are detected: ? and ?
- Length of the Geiger tube: 111mm
- Diameter of the Geiger tube: 11mm
- Sensibility ? (60Co): 65cps/(µR/s)
- Sensibility ? (equivalent Sievert): 108cpm / (µSv/h)
- Max cpm: 30000
- cps/mR/h: 18
- cpm/m/h: 1080
- cpm/µSv/h: 123.147092360319
- Factor: 0.00812037037037

For more technical informations on this Radiation Shield for Arduino, go to http://www.cooking-hacks.com/index.php/documentation/tutorials/geiger-counter-arduino-radiation-sensor-board

Nuclear radiation measured by Arduino Shield

The nuclear radiation that can be measured with a Geiger counter of the type that is used here are the alpha, beta and gamma radiation, ie ionizing particles. This radiation can be controlled and used in a beneficial way (medical). On to contrary, if uncontrolled and at high doses, radiation is very harmful.

Alha particules

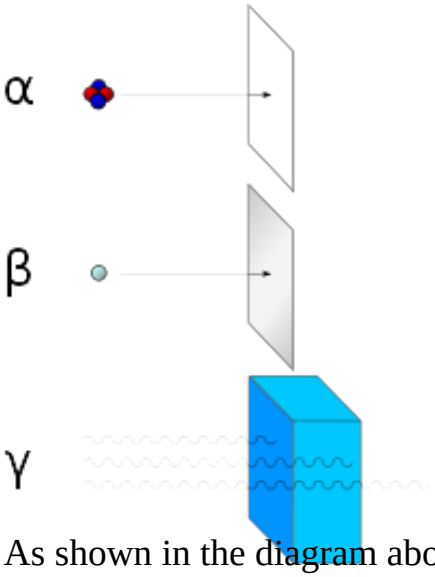
Alpha particules are charged particles resulting from the radioactive decay of a nucleus. Their penetration is low and is stopped by a sheet of paper.

Beta particules

They are either electrons or positrons. These particules have an average penetration. They are stopped by an aluminum plate.

Gamma particules

These are the most energetic and the most penetrating particles. They are also the most harmful. They may be stopped by a lead plate.



As shown in the diagram above, the different radiation materials shall be stopped by more and more dense and thick elements illustrating the penetrating power of radiation.

For more information, go to Wikipedia