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This COSMIX kit includes two Cesium Iodide (CsI) logs, of the same type as the logs of the calorimeter of the gamma-ray space telescope Fermi-LAT. The detectors are powered by a USB cable (included). A SD microcard is plugged in the Arduino shield slot (on top of the USB socket) and stores the detector counts as well as the GPS and altimeter data.

Usage

For a quick basic experiment: open the case, connect the USB socket to a laptop USB port (or any USB power supply) via the cable. The detector is now working! The counting starts on the display and the analog pulses can be visualized with an oscilloscope using the BNC sockets. Do a coincidence counting ($C1 \cap C2$ on the display) with C1 and C2 lying next to each other and another one with C2 lying on top of C1 (avoid grabbing C2 by the log).

The data are stored in the file called COSMIX.TXT on the SD card. The countings are reinitialized every time the detector is powered on. A new line is added whenever a muon is detected either in C1, C2 or both. The format is as follows:

year, month, day, hour, minute, second, (number of GPS satellites), time since powered on (1/100 s), longitude (deg.), latitude (deg.) , altitude (m), temperature (°C), pressure(Pa), C1 trigger (0 or 1), C2 trigger (0 or 1), $C1 \cap C2$ (0 or 1), cumulative C1 counts, cumulative C2 counts, cumulative $C1 \cap C2$ counts.

Before closing the case

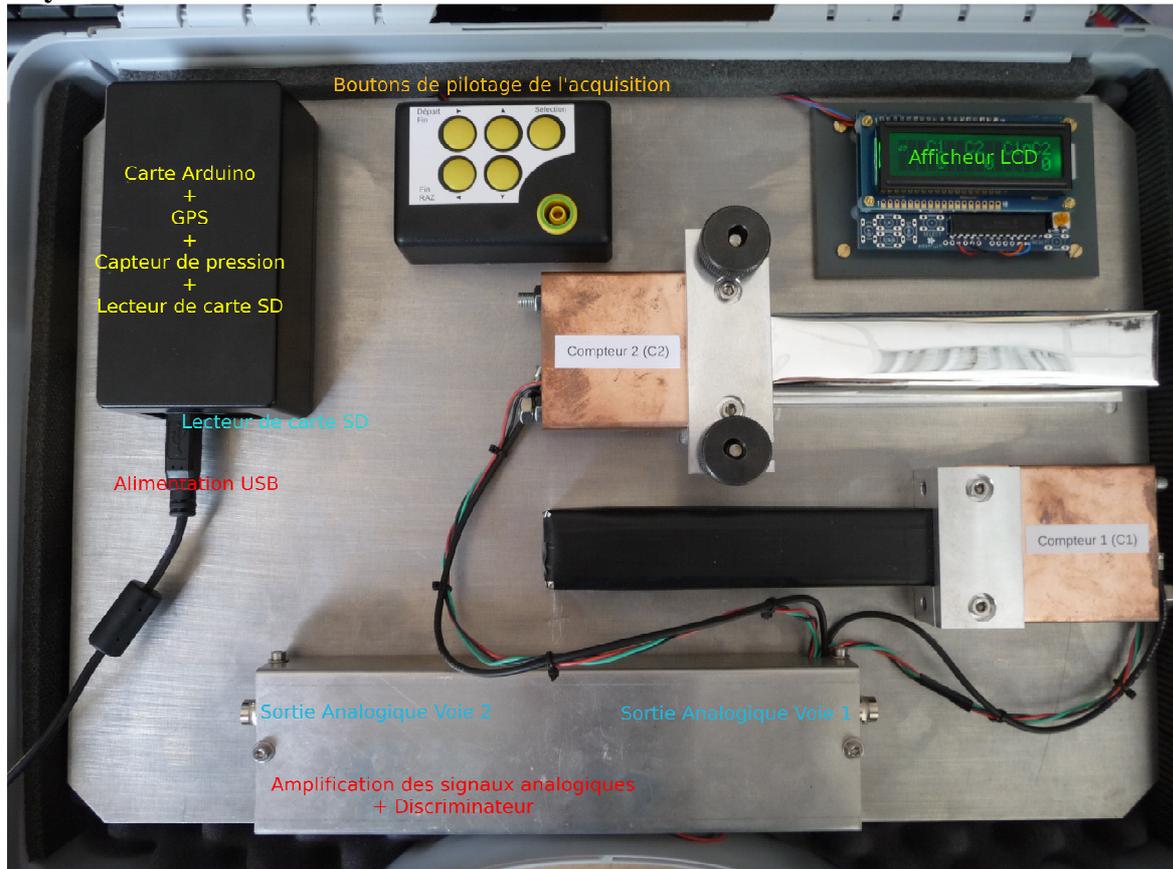
Make sure that :

- the counter C2 is fixed on its socket with the two big black screws ;
- the USB cable and the SD card are stowed in the case ;
- the plastic foam protections are in place.

Contact/Help

cosmix@cenbg.inp3.fr

Layout of the different elements



Control buttons

| | | |
|--|------------|----------------------------------|
| | Start stop | Start/stop counting |
| | ▶ | Move the cursor to the right |
| | Stop reset | Stop counting/reset |
| | ◀ | Move the cursor to the left |
| | ▲ | Scroll through the menu options. |
| | ▼ | Increase/Decrease (Duration) |
| | Selection | Select configuration menus |

Counting modes

Basic Experiment

| | | |
|--------------------------------|--|----------------------------|
| Unlimited | | Juxtaposed logs |
| predefined duration | | Superposed logs |