



Check List for SAM 940 Setup and Operation

PURPOSE:

This checklist is a step by step procedure for operation and use of the SAM 940. There is a SAM 940 Quick Start Guide and Manual, but this list allows a new user to check the items off in a logical sequence.

PROCEDURE:

- a. When connecting the external detector to the SAM 940 controller, make sure the **red markings** of the cable connectors are aligned.
- b. Power on unit by holding down the power key (⏻) for one second. A self test will auto run and display status.
- c. Follow the prompt and choose USER or ADMINSTRATOR (with up or down arrow) and ENTER.
- d. The SAM is now in the DIAL (default) mode. Let the auto calibration take place as indicated. This may take less than a minute or several minutes depending on change in temperature.
- e. Be sure the proper library has been selected by observing the notation in the upper left hand corner of the screen (usually ANSI library).
- f. Begin by storing a background spectrum. Place the soft key on “background” by using the right arrow and pressing ENTER. Remember to remove all sources away from the detector during this procedure. Generally a 1 uCi source should be at least 10 feet from the detector.
- g. To identify a radioactive source, highlight the “identify” soft key and press ENTER. The acquisition period is one minute but new soft keys will appear, allowing this to be changed by 30 second intervals while acquisition is taking place. The report will automatically appear at the end of the acquisition.
- h. Exit the report by pressing BACK or ENTER. The SAM is now ready for another acquisition.
- i. The instrument is turned off by holding down the power key for a period of 3 seconds.

ACCESSORIES/SUPPORT: vehicle chargers, headphone adapters, GPS, and many more accessories are available online at www.berkeleynucleonics.com. For support we offer web-based live chat on our website, how-to articles and videos, and 24/7 phone support as needed at 800-234-7858. Loaner units are also available to limit down time.



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SAM 940 Defender/Revealer

Getting Started

Before turning on the SAM 940, make sure that the detector is connected to the SAM via a detector cable. Turn on the SAM 940 by holding down the Back / power key ⏻ for one full second until the BNC Eagle screen appears. Press ENTER (↵) to move to the login screen. Press ENTER again to log in as User, and advance to the Search screen (typically **Dial**). At the bottom of the screen there will be a message indicating that AutoCal (automatic calibration) is in progress. Wait for AutoCal to complete (typically 1-3 minutes).

Basic Operation

At the bottom of the Search screen, 3 soft keys are displayed (**Identify**, **Background**, and **Finder**). These are highlighted by the LEFT (←) or RIGHT (→) arrow keys, and will perform the labeled function by pressing ENTER. The far right soft key allows the user to select between the available Search screens. The **Dial** and **Finder** screens are simple modes of operation. The **Dial** screen displays count rate information in the form of an analog meter. Radioactive energy moves the needle into the green region, indicating proper source intensity for identification with gamma count rate (and with optional neutron count rate). The other colored regions indicate that the source is too weak (gray) or too strong (red). If the menu option is enabled, “Move Closer” or “Move Back” will actually display. The **Finder** screen aids in location of the source by displaying intensity vertically and time horizontally. The mid-scale region is the proper intensity region for identification. An audio signal can also aid in finding the source. Access to two other advanced search modes (**Bars** and **Spectrum**) must be enabled in the *Admin* (administrator) menu. All screen modes display isotope category and dose rate in real time.

Search and Identify

Always acquire and store a background reference before conducting Search and Identification. The default time for acquiring a background or an ID spectrum is one minute. Simply highlight the **Background** soft key and press ENTER. Make certain there are no known radioactive sources nearby and press ENTER again. When finished, the SAM automatically returns to the Search screen. Use the arrow keys to highlight the **Identify** soft key. Begin searching. When radioactive energy is detected, press ENTER. The SAM displays a report when finished. Isotopes identified are shown with a statistical confidence ranging from 0 to 100%. Confidence is based on source strength, length of acquisition, number of energy lines and other statistical factors. The time of acquisition can be increased or decreased by 30 second increments. Simply press ENTER when the soft key highlight is on **+30s** or **-30s**. If ENTER is held down, the length of time will change rapidly. After viewing the report, press the BACK key to return to the Search screen. Holding down the BACK / power key for the count down of 3 seconds turns the instrument off.

Menu

Coarse calibration, review of stored spectra, alarm thresholds, and many other features can be accessed with the MENU key. Logging in as Administrator (if not password protected) offers more advanced menu choices. Menus may be accessed from any of the search mode screens.