

# The Bat Scanner Detector

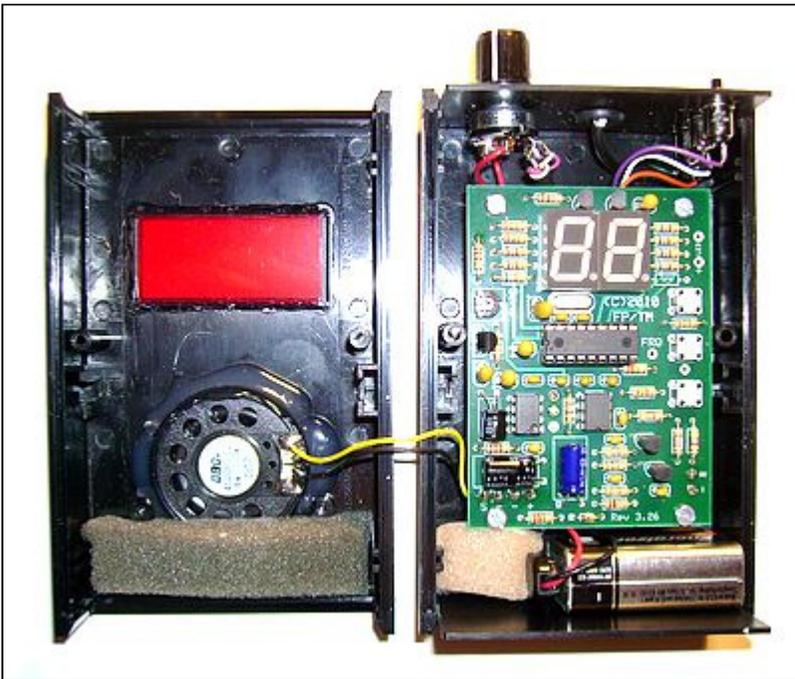
Tony Messina, t-rex@ix.netcom.com



The Bat Scanner is a heterodyne bat detector that has advanced automatic scanning capabilities built into it. The frequency is adjustable in 2kHz increments from 10kHz to 80 kHz.

The 2 digit LED display shows the tuned frequency, flashes dashes on sound detection, and allows various operating parameters to be set up in setup mode.

Controls consist of a volume control with power switch, and three pushbutton switches. The detector uses a single 9 volt battery.



Remove the two recessed screws from the back to open the case. Open the case carefully ... there are wires going to the speaker.

With the case open you can see where the battery is stored.

A small amount of foam rubber is used to keep the battery from rattling about.

As these detectors are all hand made, your detector may vary a little in how it looks inside.

You only need to open the case to adjust the SENS pot ( preset before shipping ) and to change the battery.

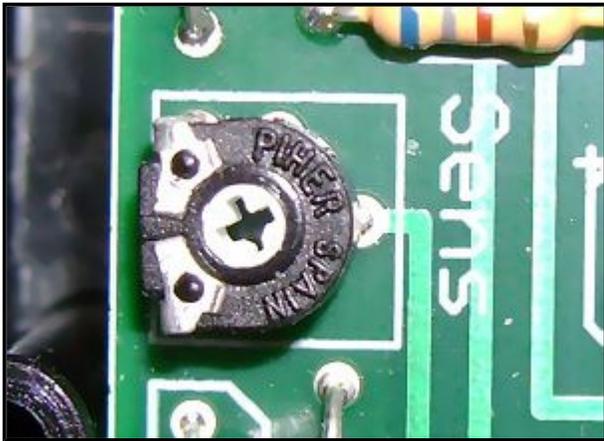
# Adjusting and Using the Bat Scanner Detector

Now we cover the operation and adjustment of the Bat Scanner detector. First, let's go over the controls.

The detector has a volume control, which also has the power switch integrated, and three pushbutton switches.

The red pushbutton switch is the scan/mode switch. It is used to initiate the scanning mode of the detector. When the detector is scanning, pressing any of the buttons will stop the scan. The red button is also used in setup mode to step through the parameters that are being configured.

The two black pushbutton switches adjust the frequency of the detector up and down. The frequency is selected in 2kHz increments from 10kHz to 80kHz. The black buttons are also used to adjust parameters in the setup mode.



The sound detection circuit sensitivity is preset before shipping. You may wish to reset it if you find it is too sensitive - or not sensitive enough for your use. The [SENS](#) control is on the printed circuit board, as shown to the left. Open up the case and install a fresh battery... then follow these steps.

Turn the detector on. You will see a short display of "db" followed by either the frequency, or a pair of dashes. If the dashes are not displayed, adjust the [SENS](#) control to the point where they come on. Next, adjust the [SENS](#) control to the point that the dashes just switch off and either the frequency or nothing is shown by the LED display. This is only a preliminary adjustment.

Using the up and down buttons, set the frequency to 60 kHz. Turn the volume up half way and jingle some keys or coins in front of the microphone. As you do so, see if the display blinks to the dashes display when the noise is heard. If so, the sound detection circuit is working properly. You can experiment with the sensitivity setting to make the detector very sensitive ( it will trigger on anything ), or less sensitive, so that it will trigger just on loud sounds. This trigger is used to interrupt the scanning action of the detector ... sometimes less sensitivity is better.

If you find that you cannot adjust the [SENS](#) pot to the point that the dashes appear, do not despair. It may be possible that the [Call Display](#) parameter is turned off in setup. Going into setup and setting the [Call Display on \( C 1 \)](#) will solve the problem and make it possible to make the sensitivity adjustment. So read ahead to the section on [Setup Mode](#).

Once you have set the [SENS](#) pot to your desired setting, you can close up the case and install the case screws. You will only need to open the case up again when the battery requires replacement.

# Bat Scanner Setup Mode

The way that the Bat Scanner operates is defined by a number of parameters that are saved in non-volatile memory. These parameters are defined by the user in the Bat Scanner Setup mode.

To put the Bat Scanner into the Setup mode, press down and hold the red button while turning on the power switch. If done correctly the LED display will show either SA, SH, SP, or SC. Now you can release the red button.

The first parameter that can be changed is the Scan mode. The four selections are:

**SP** - Scan Pause ... causes the scan to pause while sound is detected, and then to resume after a few seconds with no sound detected.

**SH** - Scan Hold ... works like Scan Pause, but holds for a much longer time before resuming the scan.

**SA** - Scan Abort ... causes the scan to stop and not resume when a sound is detected.

**SC** - Scan Continuous ... causes the scan to run continuously, ignoring detected sounds.

Pressing the black up or down buttons rotates through these various options. When the scanning option you want is displayed, press the red mode button to go to the next parameter ... the Call Display mode ...

**C1** - Call Display ON ... causes dashes to be displayed when the sound detection circuit is triggered.

**C0** - Disables the Call Display function ( makes it impossible to adjust the SENS pot !! )

Again, use the black up and down buttons to set the parameter, then press the red button to go to the next parameter.

**P1** - Power Saving mode is on - blanks the display after a number of seconds. The display resumes if a button is pressed, or scanning is paused by detected audio. ( Does not disable the Call display.)

**P0** - Power Saving mode is off - the display is always on.

The next two parameters set the scanning frequency limits.

**Lx** - X is the Lower limit for scanning in 10's of kHz

**Ux** - X is the Upper limit for scanning in 10's of kHz

Pressing the red button one more time will exit the Setup mode causing the "db" splash display to come on and the normal operation of the detector to commence.

# Operating Tips for the Bat Scanner Detector

**BATTERY LIFE:** The Bat Scanner draws an average of 40ma with the LED display on. A fresh, good quality alkaline battery ( 650 mah capacity ) will run for about 16 hours before becoming depleted. There are premium 9 volt lithium batteries ( 1200 mah ) that will last for up to 30 hours, but these are more costly. I avoid rechargeable 9 volt cells, as they are usually rated at 150 mah, and will run only about 3 hours before being depleted. If the Bat Scanner starts behaving strange ... funny LED displays, no audio output, no sound triggering - try replacing the battery. Use the *Power Saving* mode, as it blanks the display once the frequency is set, and prolongs battery life.

**LOW FREQUENCY DETECTION:** When operating the Bat Scanner at frequencies from 10kHz to 20kHz, as you might for listening to insects, the detector will be picking up sounds in the normally audible range. For example, when the detector is set to 10 kHz, it processes frequencies from 5kHz to 15kHz - all considered audible frequencies. Because of this, and due to the high gain of the detector circuitry, it is very easy and quite common to get feedback from the speaker of the detector if the volume is set too high. The detector is hearing itself !! So plan on reducing the volume when operating at these low frequencies. If you plan on using the low frequencies a lot, you might want to consider adding a headphone jack to your detector ... see the [Options Manual](#).