



the James Research oscillator/monitor

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At first glance the James Research* oscillator/monitor appears to be just another code-monitoring gadget. Not so. It's a whole lot more. It may be used for checking continuity, testing resistors or even checking components. It is a very sensitive rf detector, providing an audible output with inputs down to 10 milliwatts with an eight-inch pickup antenna. By connecting it directly to the rf source, sensitivity is increased considerably. In addition, of course, it will provide a CW sidetone of your transmitted signal without direct connection to your transmitter or serve

* James Research Company, 11 Schermerhorn Street, Brooklyn, New York 11201.

as a code-practice oscillator.

If you're doing any trouble shooting, it gives rapid indications of continuity and open components. It's a lot faster than the old ohmmeter approach, because you don't have to look up at a meter as you go from point to point. You can even check electrolytic and coupling capacitors down to about 0.5 μ F. If the capacitor is good, you'll get a short tone burst as it charges; if it's open, no tone; shorted, steady tone. You can even guess capacitor values by the length of the tone burst, but it takes a little bit of practice.

The oscillator/monitor is also great for checking semiconductors, either transistors or diodes. In addition to indicating open and shorted junctions, it will show polarity, anode or cathode, NPN or PNP. If you've ever graded semiconductors with an ohmmeter, you know how long it takes. With the oscillator/monitor it takes a matter of seconds. In fact, I just went through an assortment of 100 diodes and checked them all in less than two minutes. Transistors take slightly longer because you have to check two junctions instead of one, but it is still very fast.

Because of the high-gain dc amplifier which is incorporated into the unit, it is a very sensitive rf detector. With an eight-inch length of number 14 bus wire as a pickup unit, it will provide an audible output when placed near rf sources down to 10 milliwatts or so. If you want to check lower-powered rf sources than this, it may be connected directly. However, don't connect it directly to an rf source greater than 100 milliwatts—you're liable to burn out the input circuit. However, in amateur applications, power levels will usually be above the 10-milliwatt level, even with transistor circuits.

To use the oscillator/monitor as a CW monitor of your transmitted signal, simply place it in close proximity to your transmitter. As the transmitter is keyed, it will emit an audio tone. It may also be used to tune your transmitter for maximum output. In this case, put the oscillator/monitor just close enough to the transmitter so the oscillator just barely triggers. Then, as you tune the transmitter up, and the power increases, the tone will change.

For use as a code-practice oscillator, just

connect your bug or key across the input terminals. The audio output can be heard throughout a rather large room. You can also set up two units for code practice between two different locations. Because of the low current involved at the input terminals, resistance of long connecting wires has little effect on their operation, and the oscillator/monitors can be separated by quite long distances.

The circuit of the James Research oscillator/monitor is really quite straight-forward—a broadband rf detector coupled to a high-gain dc amplifier which triggers an audio tone oscillator. Since the input circuit is untuned, it will respond to rf sources from 100 kHz to 1000 MHz. Also, resistance from zero to 100,000 ohms will trigger the oscillator directly from the internal 1.5-V battery. Trigger current varies from 50 to 100 μ A, depending upon the resistance across the input terminals.

The unit is well packaged—16 gauge aluminum. A lasting finish is provided by black and white epoxy resin. For convenience, a magnet is attached to the back. In addition to holding the oscillator/monitor to any steel surface, it grounds the unit for better rf pick-up. All things considered, a versatile, well-designed and useful little package.

ham radio

oscillator/monitor specifications

frequency range:	100 kHz to 1000 MHz
sensitivity:	10 mW without direct connection to the unit
applications:	rf detector, continuity, component, and semiconductor tester, CW monitor, code practice oscillator
semiconductors:	4 transistors and 2 diodes
power required:	1.5 V AA battery (furnished)
size and weight:	3½" H x 2¼" W x 1¼" D; 8 ounces
price:	\$12.95 postpaid