

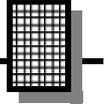
Electronic Dripping Faucet



Ramsey Electronics Model No. EDF1

*Who would've ever thought that you would **want** the sound of a dripping faucet in your house!! Especially after seeing how annoying it was on all those cartoons we used to watch! Add an unusual sound to your next alarm project with this unique noisemaker.*

- Unusual sound.
- Adjustable volume and decay.
- Runs on 4V to 9V DC.
- Small size for easy mounting.
- An easy way to irritate your friends and family and learn some basic electronics too!



PARTIAL LIST OF AVAILABLE KITS:

RAMSEY TRANSMITTER KITS

- FM10A, FM25B FM Stereo Transmitters
- AM1, AM25 Transmitter

RAMSEY RECEIVER KITS

- FR1 FM Broadcast Receiver
- AR1 Aircraft Band Receiver
- SR2 Shortwave Receiver
- AA7 Active Antenna
- SC1 Shortwave Converter

RAMSEY HOBBY KITS

- SG7 Personal Speed Radar
- SS70A Speech Scrambler/
Descrambler
- TT1 Telephone Recorder
- SP1 Speakerphone
- MD3 Microwave Motion Detector
- PH14 Peak hold Meter
- LC1 Inductance-Capacitance Meter

RAMSEY AMATEUR RADIO KITS

- HR Series HF All Mode Receivers
- DDF1 Doppler Direction Finder
- QRP Series HF CW Transmitters
- CW7 CW Keyer
- QRP Power Amplifiers

RAMSEY MINI-KITS

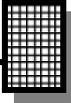
Many other kits are available for hobby, school, scouts and just plain FUN. New kits are always under development. Write or call for our free Ramsey catalog.



EDF1 Electronic Dripping Faucet

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KIT ASSEMBLY AND INSTRUCTION MANUAL FOR

Electronic Dripping Faucet

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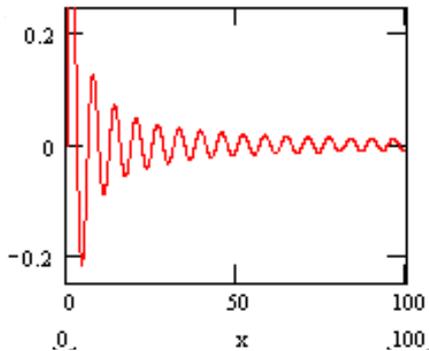
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INTRODUCTION

Have you ever had a project that you needed an alarm or alert signal for, but you were tired of the same old “beep beep”? Have you ever made an annoyance alarm to surprise that special someone, but the sound just wasn’t irritating enough? Well, help has arrived! The Ramsey EDF1 will provide you with a small, easy-to-mount noisemaking solution to fill all your unique auditory needs. All you need to do is connect a small 8 ohm speaker and off you go!

EDF1 CIRCUIT DESCRIPTION

This is a fairly simple circuit, and pretty easy to follow even for a beginning kit builder. The kit is built around a one-transistor oscillator made with Q1. This oscillator is underdamped and is “struck” into oscillation by briefly raising the voltage between R10 and R5. After the voltage between R10 and R5 returns to normal, the oscillation dies out, as shown in the picture.



The effect is an exponentially decaying sine wave. An NE555 timer provides the “striker” that gets the oscillator going. Every second or so the NE555 outputs a pulse that appears at the junction of R10 and R5. Then Q1 outputs the waveform above which is fed to an audio amplifier. The result is an output that sounds like a faucet drip or sometimes maybe a guitar string pluck.

RAMSEY Learn-As-You-Build KIT ASSEMBLY

There aren't that many solder connections on the EDF1 printed circuit board, but you should still practice good soldering techniques.

- Use a 25-watt soldering pencil with a clean, sharp tip.
- Use only rosin-core solder intended for electronics use.
- Use bright lighting, a magnifying lamp or bench-style magnifier may be helpful.
- Do your work in stages, taking breaks to check your work. Carefully brush away wire cuttings so they don't lodge between solder connections.

We have a two-fold "strategy" for the order of the following kit assembly steps. First, we install parts in physical relationship to each other, so there's minimal chance of inserting wires into wrong holes. Second, whenever possible, we install in an order that fits our "Learn-As-You Build" Kit building philosophy. This entails describing the circuit that you are building instead of just blindly installing components. We hope that this will not only make assembly of our kits easier, but help you to understand the circuit you're constructing.

For each part, our word "Install" always means these steps:

1. Pick the correct part value to start with.
2. Insert it into the correct PC board location.
3. Orient it correctly, follow the PC board drawing and the written directions for all parts - especially when there's a right way and a wrong way to solder it in. (Diode bands, electrolytic capacitor polarity, transistor shapes, dotted or notched ends of IC's, and so forth.)
4. Solder all connections unless directed otherwise. Use enough heat and solder flow for clean, shiny, completed connections.

EDF1 PARTS LIST

Sort and “check off” the components in the boxes provided. We do our best to pack all our kits correctly but it is *possible* that a mistake has occurred and we missed a part. Please note that physical descriptions of parts are for those currently being shipped. Sometimes the parts in your kit may have a different appearance but still have the same values.

RESISTORS

- 1 2 ohm resistor [red-black-gold] (R9)
- 1 1K ohm resistor [brown-black-red] (R6)
- 1 2K ohm resistor [red-black-red] (R10)
- 2 10K ohm resistor [brown-black-orange] (R5)
- 2 47K ohm resistor [yellow-violet-orange] (R3,R4)
- 1 100 K ohm resistor [brown-black-yellow] (R1)
- 1 470K resistor [yellow-violet-yellow] (R7)
- 1 5K potentiometer [orange top marked 502] (R2)
- 1 100K potentiometer [orange top marked 104] (R8)

CAPACITORS

- 5 .01 uF ceramic disc capacitors [marked 104] (C2,C3,C4,C5,C10)
- 2 .1 uF electrolytic capacitor (C1,C11)
- 1 1 uF electrolytic capacitor (C13)
- 1 10 uF electrolytic capacitor (C8)
- 1 2.2 uF electrolytic capacitor (C6)
- 2 220 uF electrolytic capacitor (C9,C12)

SEMICONDUCTORS

Note: Chips may have other numbers and letters on them; the important numbers are those listed in brackets.

- 1 LM386N [marked LM386N-1] (U1)
- 1 NE555 Timer (U2)
- 1 1N4148 silicon diode (D1)
- 1 2N3904 (Q1)

MISCELLANEOUS

- 1 9V battery snap

EDF1 PC BOARD ASSEMBLY STEPS

Remember to save at least one clipped off component lead for use as a jumper later in the construction process.

- 1. Let's start with U2, the NE555 timer. The NE555 repeatedly starts the oscillator that produces the dripping sound. Install it down at the bottom middle of the board. Be sure to line up the notch on the board drawing with the notch on top of U2 and be sure you're not installing the other IC (both have 8 pins)! Also be sure that all leads are through the board before soldering.
- 2. Next, install C13, 1 uF electrolytic capacitor, next to U2. Make sure its polarity is correct. The "+" on the board has to line up with the positive side of the cap. Usually, it's the "-" side of the cap that is marked. The other side is "+".
- 3. Install C6, 2.2 uF electrolytic capacitor, next to C13. Watch polarity again.
- 4. Install C12, 220 uF, electrolytic capacitor, above C6. Watch polarity.
- 5. Install R9, 2 ohm resistor [red-black-gold], above U2.
- 6. Install C11, .1 uF ceramic disc capacitor [marked 104], above R9.
- 7. Install U1, LM386N above C11. This is the audio amplifier that drives the speaker you connect.
- 8. Install C8, 10 uF electrolytic capacitor above U1. Watch that polarity.
- 9. Install C9, 220 uF electrolytic capacitor, next to U1.
- 10. Install C10, .01 uF ceramic disc capacitor [marked 103], to the right of U1.
- 11. Install R8, 100K ohm potentiometer [orange top marked 104], to the left of U1.
- 12. Install C1, .1 uF ceramic disc capacitor [marked 104], to the left of U1.
- 13. Install C5 and C4, .01 uF ceramic disc capacitors [marked 103], to the left of R8.
- 14. Install R2, 5K ohm potentiometer [orange top marked 502], to the left of C4.
- 15. Install R3, 47K ohm resistor [yellow-violet-orange], under R2.
- 16. Install Q1, 2N3904 [marked, oddly enough, 2N3904], under R3.

- ❑ 17. Install R10, 2K ohm resistor, [red-black-red] under Q1.
- ❑ 18. Install R5, 10K ohm resistor [brown-black-orange], to the right of R10
- ❑ 19. Install C3, .01 uF ceramic disc capacitor [marked 103] next to R5.
- ❑ 20. Install R4, 47K ohm resistor [yellow-violet-orange], next to C3.
- ❑ 21. Install R1, 100K ohm resistor [brown-black-yellow], next to R4.
- ❑ 22. Install C2. .01 uF ceramic disc capacitor, under Q1.
- ❑ 23. Install D1, 1N4148 silicon diode, under C2. Be sure the band on the diode lines up with the band on the board drawing.
- ❑ 24. Install R7, 470K ohm resistor [yellow-violet-yellow], under R5.
- ❑ 25. Install JMP1, under R7, using a little piece of cutoff component lead.
- ❑ 26. Install R6, 1K ohm [brown-black-red], under JMP1.

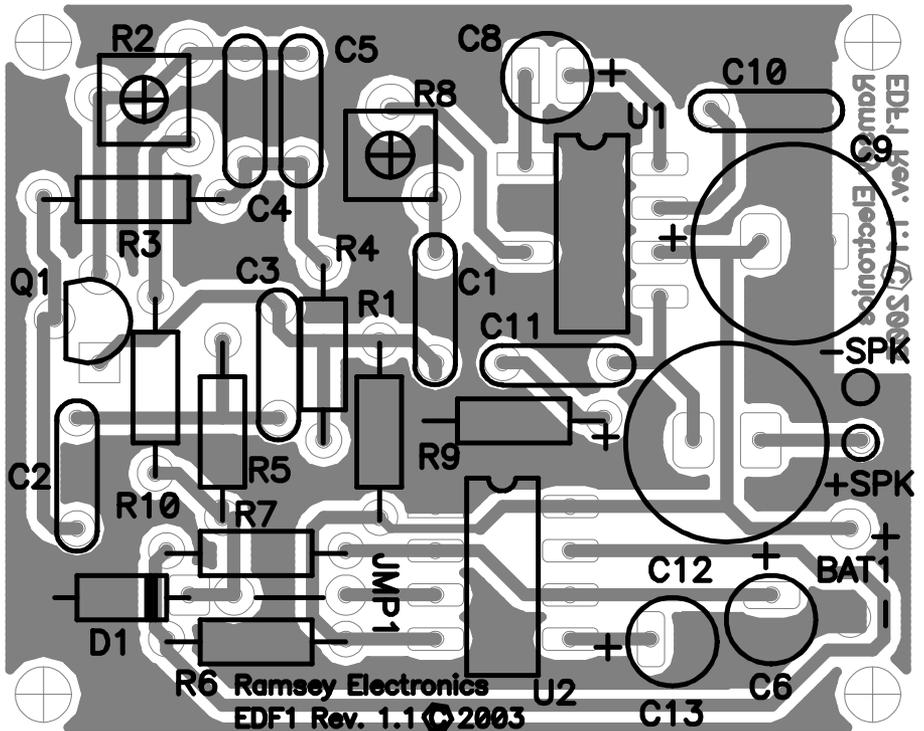
SETUP AND TESTING

- ❑ Testing out the EDF1 is really easy. Just solder an 8 ohm speaker into the holes for the speaker which are located above the BAT1 pads. There's no silkscreen for these pads so you'll need to look at the parts layout diagram to determine the "+" and "-" holes. Solder the positive or red wire of your speaker into the "+" SPK pad. Solder the negative or black wire of your speaker into the SPK "-" pad. If your speaker doesn't have "+" and "-" labels, don't worry, it will work fine anyway.
- ❑ Solder in the 9V battery snap into the BAT1 pads. Now adjust R8 for volume and R2 for the decay time of the drip sound. Play with these two until you get the most obnoxious sound possible. You can also twiddle with the value of R1. If you want to run your EDF1 at lower voltages, you can reduce R1 to something like 220K. This will lengthen the sound and provide a longer "drip".

TROUBLESHOOTING GUIDE

If your kit doesn't work it's most likely a transistor put it wrong, or a polarized component in backwards. Just make sure the transistor is lined up correctly and the electrolytic caps are in the right way. If all this checks out, make sure the right resistors are in the right places. Check your solder joints to be sure they're solid and look for solder splashes, solder bridges, cold solder joints or unsoldered components.

EDF1 MAIN BOARD PARTS LAYOUT DIAGRAM



The Ramsey Kit Warranty

Please read carefully BEFORE calling or writing in about your kit. Most problems can be solved without contacting the factory.

Notice that this is not a "fine print" warranty. We want you to understand your rights and ours too! All Ramsey kits will work if assembled properly. The very fact that your kit includes this new manual is your assurance that a team of knowledgeable people have field-tested several "copies" of this kit straight from the Ramsey Inventory. If you need help, please read through your manual carefully, all information required to properly build and test your kit is contained within the pages! However, customer satisfaction is our goal, so in the event that you do have a problem, take note of the following.

1. DEFECTIVE PARTS: It's always easy to blame a part for a problem in your kit, Before you conclude that a part may be bad, thoroughly check your work. Today's semiconductors and passive components have reached incredibly high reliability levels, and its sad to say that our human construction skills have not! But on rare occasions a sour component can slip through. All our kit parts carry the Ramsey Electronics Warranty that they are free from defects for a full ninety (90) days from the date of purchase. Defective parts will be replaced promptly at our expense. If you suspect any part to be defective, please mail it to our factory for testing and replacement. Please send only the defective part (s), not the entire kit. The part(s) MUST be returned to us in suitable condition for testing. Please be aware that testing can usually determine if the part was truly defective or damaged by assembly or usage. Don't be afraid of telling us that you 'blew-it', we're all human and in most cases, replacement parts are very reasonably priced.

2. MISSING PARTS: Before assuming a part value is incorrect, check the parts listing carefully to see if it is a critical value such as a specific coil or IC, or whether a RANGE of values is suitable (such as "100 to 500 uF"). Often times, common sense will solve a mysterious missing part problem. If you're missing five 10K ohm resistors and received five extra 1K resistors, you can pretty much be assured that the '1K ohm' resistors are actually the 'missing' 10 K parts ("Hum-m-m, I guess the 'red' band really does look orange!") Ramsey Electronics project kits are packed with pride in the USA. If you believe we packed an incorrect part or omitted a part clearly indicated in your assembly manual as supplied with the basic kit by Ramsey, please write or call us with information on the part you need and proof of kit purchase.

3. FACTORY REPAIR OF ASSEMBLED KITS:

To qualify for Ramsey Electronics factory repair, kits MUST:

1. NOT be assembled with acid core solder or flux.
2. NOT be modified in any manner.
3. BE returned in fully-assembled form, not partially assembled.
4. BE accompanied by the proper repair fee. No repair will be undertaken until we have received the MINIMUM repair fee (1/2 hour labor) of \$18.00, or authorization to charge it to your credit card account.
5. INCLUDE a description of the problem and legible return address. DO NOT send a separate letter; include all correspondence with the unit. Please do not include your own hardware such as non-Ramsey cabinets, knobs, cables, external battery packs and the like. Ramsey Electronics, Inc., reserves the right to refuse repair on ANY item in which we find excessive problems or damage due to construction methods. To assist customers in such situations, Ramsey Electronics, Inc., reserves the right to solve their needs on a case-by-case basis.

The repair is \$36.00 per hour, regardless of the cost of the kit. Please understand that our technicians are not volunteers and that set-up, testing, diagnosis, repair and repacking and paperwork can take nearly an hour of paid employee time on even a simple kit. Of course, if we find that a part was defective in manufacture, there will be no charge to repair your kit (But please realize that our technicians know the difference between a defective part and parts burned out or damaged through improper use or assembly).

4. REFUNDS: You are given ten (10) days to examine our products. If you are not satisfied, you may return your unassembled kit with all the parts and instructions and proof of purchase to the factory for a full refund. The return package should be packed securely. Insurance is recommended. Please do not cause needless delays, read all information carefully.

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REQUIRED TOOLS

- Soldering Iron (WLC100)
- Thin Rosin Core Solder (RTS12)
- Needle Nose Pliers (MPP4 or RTS05)
- Small Diagonal Cutters (RTS04)

TOTAL SOLDER POINTS

77

ESTIMATED ASSEMBLY TIME

Beginner 2 hrs
Intermediate..... 1 hrs
Advanced..... .30 min

ADDITIONAL SUGGESTED ITEMS

- Helping Hands Holder for PC Board/Parts (HH3)
- Technician's Tool Kit (TK405)
- Desoldering Braid (RTS08)



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