

FIG. 4—HOW TO WIRE AN INTERCOM. The master can set any remote unit to off (silence), on (to feed it audio from whomever is talking), or listen (to listen continuously to the remote).

Intercom Wiring

Q My question is about the intercom you describe in the February 1997 issue (pg. 14). It works very well with two stations, but how can I hook up more than that? — D. R., St.-Augustin-de-Desmaures, Quebec, Canada

A Note that in the original diagram, the two remote units are connected in parallel. That is, each unit is connected to the same three places in the amplifier circuit. You can connect many more units in parallel with them in the same way.

Figure 4 shows a more sophisticated way to wire an intercom so that the master unit can turn any of the remote units on or off, or place it in continuous "listen" mode (for baby monitoring and the like). When any unit talks, it is heard on all the units that are switched on, not just the master.

The speaker in the master unit is wired just like a remote unit except that it does not need an "on/off/listen" switch; wire it to be "on" all the time.

Two Minutes of Power

Q I need a 555 timer circuit that will activate a relay for two minutes when a pushbutton is pressed, which means the output will stay high for two minutes, then go low and stay low, and go high for two minutes again when the button is pressed again. The circuit may be similar to "Delayed Power-On" published in November, 1997,

pg. 8, but I tried to change it without any luck. — C. L., Pittsburg, KS

A The circuit is indeed very similar, as shown in Fig. 5. (See also "Five Minutes of Power," which we discussed on pg. 12 in the January 1997 installment of this column.)

The main difference is that the resistor and capacitor are swapped, so that the 555 output goes high when the capacitor is discharged rather than when it is charged. Pressing the button discharges the capacitor, and it takes about two minutes to charge up again.

To drive a relay, be sure to use a conventional bipolar 555 (NE555, LM555), not the CMOS 7555, LMC555, or TLC555—they can't source enough current. Even so, the relay coil must not draw more than 200 mA. Diode D1 protects the 555 from inductive kickback.

The Third Wire

Q Why does my laptop computer battery pack have three wires instead of two? — R. A. B., Falmouth, VA

A The third wire probably goes to a temperature sensor that is used to control fast charging.

Point of Grammar

Q Why do you further the misuse of the English language by speaking of "an

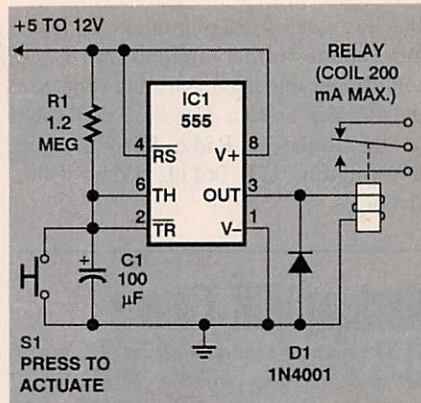


FIG. 5—WHEN THE PUSHBUTTON SWITCH (S1) is closed, the relay closes for two minutes, then opens. Do not use the CMOS versions of the 555 chip (7555, TLC555, etc.) for IC1.

LED" ("Q&A," August 1997, page 8, Fig. 2)? — D. W. E., Nappanee, IN

A It's not an error. The usage of *a* and *an* depends on pronunciation, not spelling. We pronounce LED as "ell ee dee," which begins with a vowel sound, so we put *an* in front of it. If you pronounced it "led," you would of course say "a LED."

Conductive Rubber For LCD

Q According to your statement at the end of the Q&A page, you welcome questions. I am sorry to say that through all the years I have subscribed to your magazine, I have never received an answer to any of my questions. I hope that you will answer the following:

In your August 1997 issue, pg. 8, you described the conductive rubber that is used under LCD displays. I have a Precision Data multimeter that uses this material. Apparently, my conductive strips have aged and are not conducting properly. Do you know where I can purchase these strips and how they are identified? — W. B. H., Knoxville, TN

A We regret that we can answer only about a third of the questions we receive. Space limitations are the biggest reason; also, we choose questions that are of wide interest and that we can answer reliably. (Even we don't know everything!)

Sometimes, when a question is a real puzzler, we throw it open for readers to answer. That's what we're going to do with yours, since we've never seen the