

9 Pseudo-Random Sequence Generator

□ A pseudo-random sequence generator is like a scrambled counter. Instead of counting 1,2,3,4,..., the PRSG might yield an output of 2,9,7,1... The PRSG shown here supplies a sequence of 255

scrambled numbers, available in binary form at the eight outputs (Q1 through Q8). Some applications:

First, you might hook up an LED and a 330-

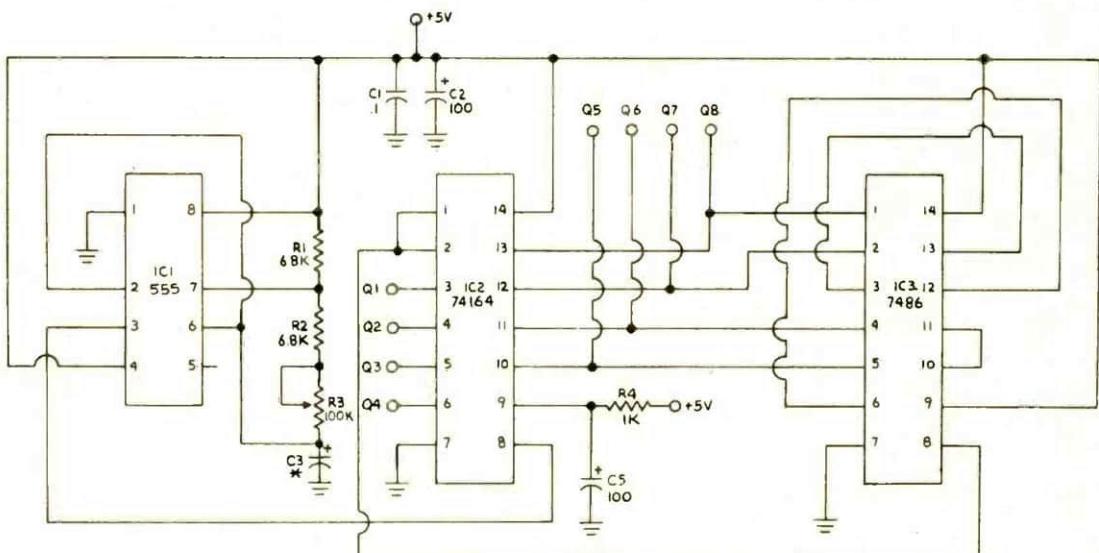
ohm resistor to each output as illustrated. Use a 5- μ F electrolytic capacitor for C3, and you'll have a dandy idiot box, which will blink impressively on your desk, but do nothing.

Or, you could hook up the resistor network diagrammed, and use a 330 pF polystyrene

capacitor for C3. You'll get a 1-volt peak-to-peak noise voltage at J1 which can be used to generate interesting percussive sounds in conjunction with the Musical Modulator presented elsewhere in this issue.

PARTS LIST FOR PSEUDO-RANDOM GENERATOR

- C1**—0.1- μ F ceramic disc capacitor, 35-WVDC
- C2, C5**—100- μ F electrolytic capacitor, 10-WVDC
- C3**—5- μ F 10-WVDC electrolytic or 330-pF polystyrene capacitor (see text)
- C4**—1.0- μ F mylar capacitor (non-polarized), 35-WVDC
- IC1**—555 timer integrated circuit
- IC2**—74164 shift register integrated circuit
- IC3**—7486 quad EX-OR gate integrated circuit
- J1**—phono jack
- LED1 thru LED8**—Light-emitting diode
- R1, R2**—6800-ohms-ohm, $\frac{1}{4}$ -watt 10% resistor
- R3**—100,000-ohm linear-taper potentiometer
- R4-R6**—1000-ohm, $\frac{1}{4}$ -watt 10% resistor
- R5a thru R5h**—330-ohm, $\frac{1}{2}$ -watt 10% resistor
- R7**—2200-ohm, $\frac{1}{2}$ -watt 10% resistor
- R8**—3900-ohm, $\frac{1}{2}$ -watt 10% resistor
- R9**—8200-ohm, $\frac{1}{2}$ -watt 10% resistor
- R10**—15,000-ohm, $\frac{1}{2}$ -watt 10% resistor
- R11**—33,000-ohm, $\frac{1}{2}$ -watt 10% resistor
- R12**—62,000-ohm, $\frac{1}{2}$ -watt 10% resistor
- R13**—120,000-ohm, $\frac{1}{2}$ -watt 10% resistor
- R14**—120-ohm, $\frac{1}{2}$ -watt 10% resistor



* C=5 μ F (IDIOT BOX)
OR
330 pF (NOISE)

ANY Q → R5a-h → LED1 → +5V
USE 8 LEDs LIKE THIS ONE
FOR THE IDIOT BOX

J1 → C4 → R6 → R7 → R8 → R9 → R10 → R11 → R12 → R13 → R14 → +5V
USE RESISTOR NET LIKE THIS TO GENERATE NOISE