A WELL-REGULATED DC POWER SUPPLY

N. H. AZRIN AND W. C. HOLZ¹

ANNA STATE HOSPITAL, ANNA, ILLINOIS

The recent development of well-regulated DC power supplies has provided increased reliability and simplicity in programming behavioral experiments. While well-regulated DC supplies are available from several sources, we have found a 30 amp model (MTR 28-30 from Perkins Electronics, El Segundo, Calif. approximate cost, \$1,000) to be well-suited to our needs. The unit has operated continuously for about six months. The output has been relatively free of transients. Static load regulation is 0.1% and dynamic load regulation (no load to full load) is .5 volt with a recovery time measured in μ -secs. Regulation is .1% for both static and dynamic changes of the line voltage. This fine degree of regulation has eliminated several types of previously encountered problems. First, AC pilot lights are no longer necessary for avoiding flicker so

long as the connecting cables are of sufficient diameter. DC pilot lights for visual presentation can be used, thus eliminating the necessity for the isolation relays previously needed to isolate the AC from the DC control circuits. Secondly, DC components, such as counters, steppers, *etc.*, operate more reliably as the effective voltage across these components is no longer influenced by current drain from other components or other experimental chambers. Thirdly, electronic timers are no longer needed in timing durations less than 5 sec, as durations of this magnitude are accurately timed by an RC circuit utilizing only a capacitor and a relay. The stability of the voltage allows for great accuracy with this type of circuit. Fourthly, wiring of circuits has been greatly simplified as AC is now used only for components having a synchronous timing motor.

¹Now at Harvard University.