

AUTOMATIC FADER

This unit can be used at discos, slide shows, film shows, etc. At the flick of a switch it can be used to automatically fade a signal in or out without introducing any clicks or other background sounds. Normally a unit of this type is used to control background music (providing a simple method of fading it out during a commentary and returning it again afterwards), or some similar application.

In this circuit P channel JFET transistor Q1 is used as a voltage controlled resistance. Its drain to source resistance actually forms a voltage controlled attenuator in conjunction with R1. The input signal is applied to this by way of DC blocking capacitor C2. When power is initially applied to the circuit, C4 will be uncharged and the gate to source voltage of Q1 is therefore zero. This gives Q1 a low drain to source resistance of only about 100 ohms, causing high losses through the relatively high resistance of R1. As the ratio of these two resistances is about 10,000 to 1, the output from the attenuator is only about one 10,000th of the input level (-80dB) and the signal is thus effectively cut off. As C4 begins to charge via R2, Q1 becomes increasingly reverse biased, causing its drain to source resistance to increase. As this

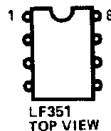
resistance increases, the losses through R1 decrease, causing the signal to "fade" in. Eventually the drain to source resistance of Q1 reaches its maximum value of about 1,000 megohms, which gives no significant losses through R1.

Switching SW1 to the "down" position gradually discharges C4 through R3, returning the bias on Q1 to its original state and fading out the

signal once again. Switching SW1 back to the "up" position returns the reverse bias to Q1, bringing the signal back up to full level once again. IC1 is simply used as a high impedance buffer stage that ensures little loading is placed on the attenuator so that it is permitted to function correctly.

The fade up and fade down times are controlled by the settings of R2

and R3 respectively, and can be adjusted from a fraction of a second to as much as about 8 seconds or so. If the full fade out level of about -80dB is not required, a 1M preset can be inserted between Q1 drain and the junction of R1-C3. The fade out level can then be adjusted from about 6dB to the full 80dB using this component. The current consumption of the unit is only about 2 mA.



2N3820
BASE VIEW

