



Fig. 9.2. Multiplier circuit, comprising product amplifier panel and bistable relay panel

wholly dependent on E_1 , but whatever the value of E_1 it will be divided by $10/E_2$ (time division), which is the same thing as $(E_1 \times E_2)/10$, assuming of course that appropriate values for $R1-R3$, R_f and E_3 are chosen.

Waveforms (c) shows what happens to different signs of E_1 and E_2 , in terms of the square wave. If now the mean voltage level of the output from the product

amplifier is extracted by a suitable filter (see waveform (d)) it can be seen that four quadrant multiplication has been achieved. When E_1 and E_2 are both positive, or both negative, the product voltage will be positive, but when E_1 and E_2 are of opposite sign, the product becomes negative.

The multiplier circuit will now be described.