A digital plateau detecting rate meter

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The unit was originally designed to identify rate plateaux in isolated atria and will be demonstrated in use with this preparation. However, it may be used with any technique requiring identification of periods of constant rate.

A schematic diagram is shown in Figure 1. The input circuit has been designed to trigger reliably in the presence of complex waveforms associated with biological preparations and has externally adjustable gain and trigger level controls. The processed signal from the input circuit is fed into the counter/display unit and the plateau detecting circuit.

A rate plateau is identified by the plateau detecting circuit as a pair of consecutive 30 s counts differing by no more than a preset limit (± 2 in this case). This is effected by the up/down counter which counts up for 30 s and then down (back to zero) for the following 30 s and then determines whether the two counts are within the limits. If the counts are within limits a signal is fed into the control logic which holds the count displayed as counts min^{-1} by the counter/display unit until manually reset. The latter has been counting normally, in parallel with the up/down counter for the whole minute period.

If the difference in counts is outside the preset limit the unit automatically resets both counters and compares the following pair of 30 s counting periods; the process is repeated until a plateau is detected.

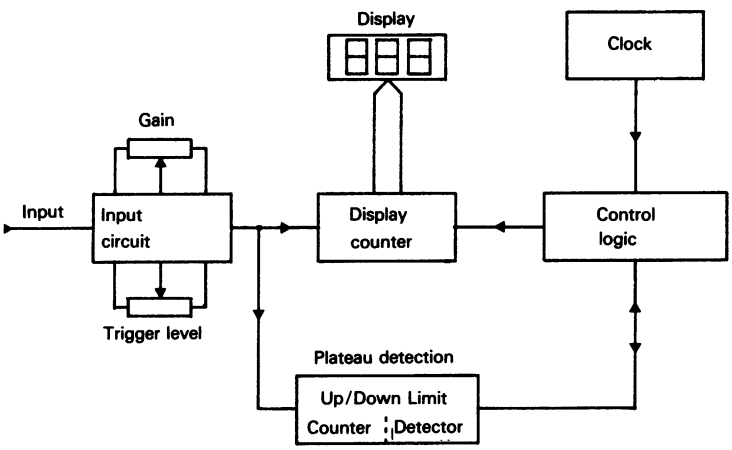

Figure 1 Schematic diagram of rate meter