

# APPARATUS FOR THE MEASUREMENT OF REACTION TIME

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**Summary :** An apparatus for the measurement of reaction time to both visual and auditory stimuli with a provision to vary intensity of stimuli and with facility for lateralisation of sound to the right or left ear has been described.

**Key words :** reaction time  
visual and auditory stimulus

lateralisation to auditory  
accuracy

## INTRODUCTION

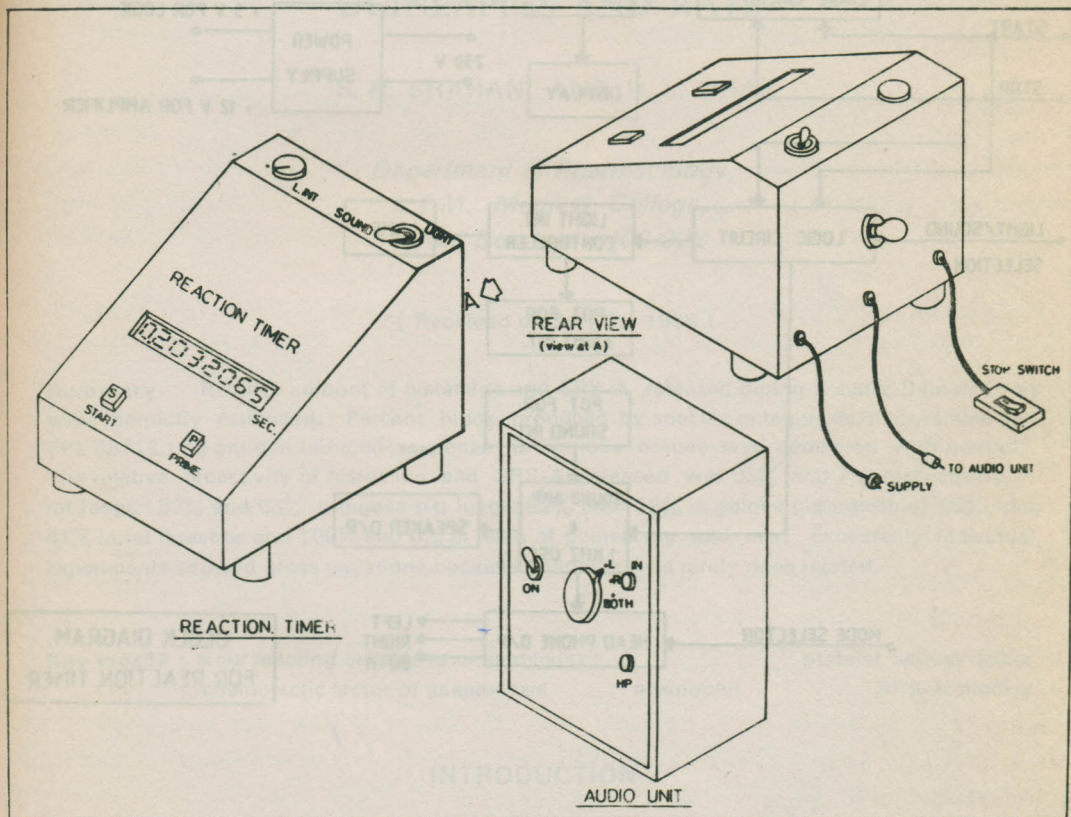
An apparatus for measuring reaction time to both visual and auditory stimuli with a provision to vary intensity of stimuli and with facility for lateralisation of sound to the right or left ear has been manufactured. The instrument is being used for the study of reaction time in normals, smokers, diabetics, psychiatric patients and neurologically afflicted patients.

*Description of the reaction time assembly :* The electronic apparatus to measure reaction time has an eight digit display unit for time interval measurement and intensity controls for visual stimulus by energising an electric lamp (fitted at rear side of the equipment) at the set intensity or alternatively for auditory stimulus by energising an audio amplifier at the set intensity. The sound output is either through a loud speaker or through stereo head phone. (Fig. 1) when the headphone is connected, the sound can be heard either through the right, left or both ears by selecting the switch position marked as R, L & B provided on the rear of the amplifier. Accurate resolution in time interval measurement is 100 ns (0,0000001s).

The timer circuit is constructed using standard I.C.s and multifunction IC type ICM 7226 A manufactured by Intersil, Inc. U.S.A. The ICM 7226 A can function as frequency counter, period counter, frequency ratio counter or time interval counter.

The block diagram of the entire assembly is shown in Fig. 2.

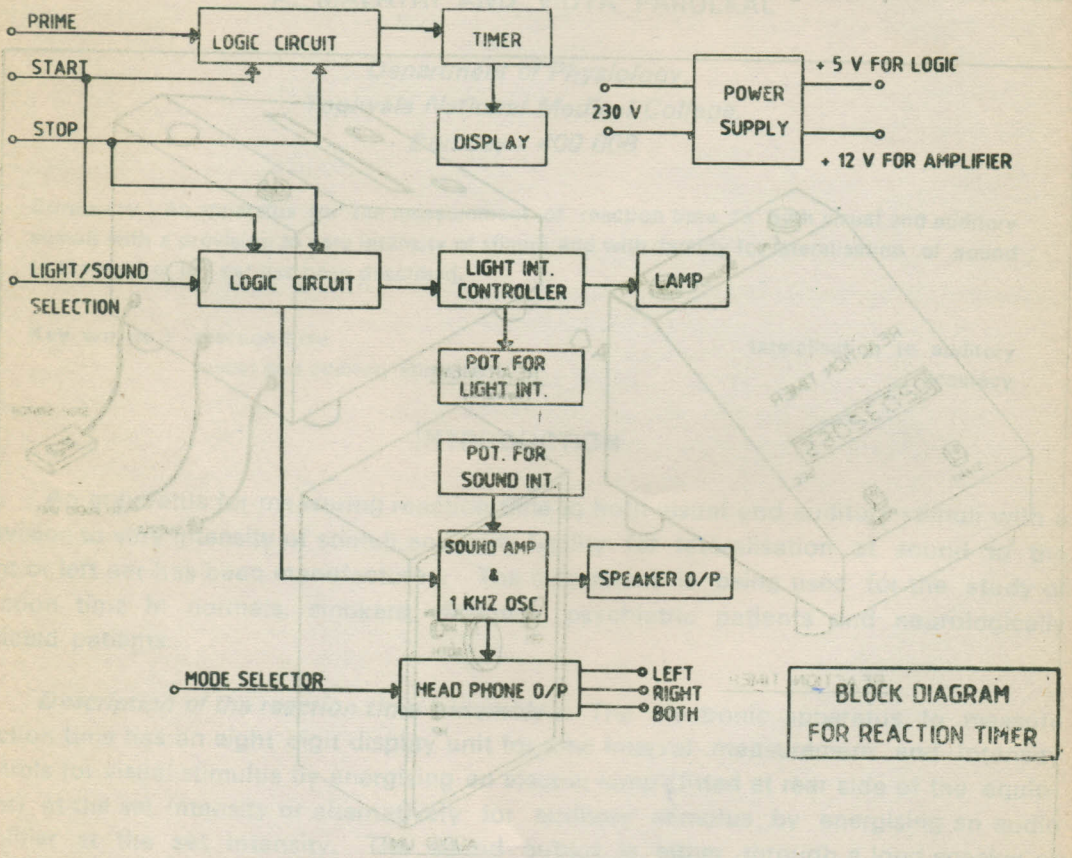
**Operation :** On the front panel, below the digital display there are two buttons 'Start' and 'Prime'. The 'Stop' button is a switch operable by the subject. A partition is provided between the subject and examiner so that the subject responds only to the stimulus and not by seeing inadvertently to examiners actuation of "Start" switch.



The unit is made ready for operation by pressing the 'Prime' button. By pressing the 'start' button the timer started with simultaneously causing the lamp to light or produces an audible output (through the headphones or the speaker) as the case may be. The subject responds to, the light or auditory stimuli as the case may be by pressing the 'stop' button which stops the timer. The reaction time is directly read from the digital display.

The main features of this equipment are its high degree of accuracy in the measurement of reaction time, provision of lateralisation of auditory stimulus to right or left ear, so

it may be useful to determine the dominance of cerebral cortex. The instrument is extremely simple to operate, is portable and can be useful in the clinical practice for the study of psychiatric patients or neurologically afflicted patients.



**BLOCK DIAGRAM  
 FOR REACTION TIMER**

The unit is made ready for operation by pressing the 'Prime' button. By pressing the 'start' button the timer starts with simultaneously causing the lamp to light or produce an audible output (through the headphones or the speaker) as the case may be. The subject responds to the light or auditory stimuli as the case may be by pressing the 'stop' button which stops the timer. The reaction time is directly read from the digital display.

The main features of this equipment are its high degree of accuracy in the measurement of reaction time, provision of lateralisation of auditory stimulus to left ear so