

## Timer Scaler & Frequency Meter IPC-3342-T

### Introduction

This instrument combines the functions of a multi-purpose timer, a scaler, a ratemeter and a frequency meter. All functions have an autoranging display making the instrument very easy to use. Function selection is made by the 4-position rotary switch on the front panel.

### Timer

When used as a timer the instrument can be switched mechanically or electrically by connecting to the sockets marked 'A' and 'B'. Sockets 'A' will alternately start and stop the timer on the falling edge of a signal applied to them i.e. start and stop on a contact closure. Sockets 'B' will alternately start and stop on a rising edge i.e. start and stop on a contact opening. (The blue sockets are internally pulled high).

### Scaler & Ratemeter

When used as a scaler or ratemeter the input can be via either a GM tube or a solid state detector. Setting the toggle switch to 'GM' allows a GM tube to be connected to the front panel socket marked 'GM'. The HT supply to the GM tube is then continuously variable from 300 to 500V. Setting the toggle switch to 'SS' switches in the internal preamplifier and allows a solid state detector to be used via the front panel connector marked 'SS'. Operating the toggle switch marked 'SOUNDER' switches on the internal sounder.

**N.B.** The solid state detector input, by its very nature, is extremely sensitive. With the toggle switch set to 'SS' and no detector connected, spurious counts may be experienced. This is eliminated when the detector is connected.

### Frequency Meter

When used as a frequency meter the input is via the pair of sockets labelled 'A'. If the input signal is over 1MHz the display will flash 0.000.

### Hold and Reset

A biased toggle switch allows the HOLD or RESET functions to be momentarily selected. The HOLD position freezes the display whilst the internal timing or counting continues. Selecting RESET stops the timer or counter and resets the display to 0.000.

### 'g' by Freefall Experiment

This instrument is recommended for all 'g' by Freefall experiments and a full set of experiment notes including instructions and diagrams can be found on the IPC website: [www.ipcel.co.uk](http://www.ipcel.co.uk)

### Technical Specification

#### Timer

Ranges	0 to 9.999s 10 to 99.99s 100 to 999.9s 1000 to 9999s
Accuracy	±0.1%

#### Frequency Meter

Ranges	0 to 9.999kHz 10 to 99.99kHz 100 to 999.9kHz
Accuracy	±0.01%
Max input signal	20V rms
Max Sensitivity	250mV rms
Range	10Hz to 1MHz

#### Ratemeter

Ranges	0 to $9.999 \times 10^3 \text{ s}^{-1}$ 10 to $99.99 \times 10^3 \text{ s}^{-1}$ 100 to $999.9 \times 10^3 \text{ s}^{-1}$
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#### Scaler

Ranges	0 to $9.999 \times 10^3$ counts 10 to $99.99 \times 10^3$ counts 100 to $999.9 \times 10^3$ counts
Sensitivity	160mV peak