

STRAIN GAUGE TRAINER KIT,

MODEL – SG – 10.

INSPECTION :

The instrument should be inspected for any physical damage, if any breakage is found, a carrier should be informed immediately, the original packing should be retained till the installation of the instrument to your entire satisfaction. Please also check all controls mounted on the panel should be intact physically.

PERFORMANCE :

After verification of the above, performance of the instrument should be verified as per specification of the instrument.

INTRODUCTION :

The term STRAIN is best explained by an understanding of the principle of operation, when a load is imposed upon any material object, that will expand or contract causing strain in that material.

Now a days materials have to answer by high demand as regards their strength and it is essential to know exactly how strain is distributed in mechanical construction. This is important not only with a view to economizing in materials but also from safety point of view.

The set – up has been designed for the characteristics of strain gauge using “Strain Gauge Transducer”.

1. Cantilever fitted with a plate form for loading.
2. Strain Gauge Sensor.
3. 3 ½ Digit Digital Strain Indicator.

SPECIFICATIONS :

Power Requirement	:	230 Volt, $\pm 10\%$, 50 Hz.
Range	:	0 – 500, μ Strain.
Sensor	:	Strain Gauge fitted on Strain Bar.
Weight Capacity	:	1, Kg. (Maximum)

PANEL CONTROLS :

1. ON – OFF switch, has been provided on the front panel for easy operation.
2. Zero adjuster – A Zero Adjuster marked with “Zero” has been provided on front panel for adjusting zero in the Digital Meter before taking readings.
3. Digital Indicator – A 3 ½ Digit Digital Strain Indicator is fitted in the set – up on the front panel itself which reads strain directly.
4. Strain Gauge Sensor – Fitted on cantilever and covered with jelly for protection.
5. toggle switch has been provided on the front panel for measurement of strain and resistance.
6. A cantilever fitted plate form for loading is mounted on front panel.

OPERATING INSTRUCTION :

1. Connect the set – up from mains (230V $\pm 10\%$ A.C) with proper earthing.
2. Short the terminal (Red to Red and black to black) has been provided on the front panel marked with “STRAIN GAUGE”.
3. Set the toggle switch on MICRO STRAIN (μ S).
4. Put “ON” the ON – OFF switch fitted on front panel.
5. Adjust “zero” with the “zero adjust ” mounted on panel before taking any reading . At that time resistance will be zero.

6. Now put some known weight on cantilever plate (say 100gm. 200gm. etc) and note that reading in digital indicator of micro strain and corresponding resistance .
7. Plot the graph between micro strain & resistance and also strain & weight.

OBSERVATIONS :

The result given below has been taken on prototype. The actual results may vary from unit to unit.

TABLE

S. NO	Weight	Micro Strain	Resistance
1	100 gm	25	.06
2	200 gm	50	.10
3	300 gm	75	.15
4	400 gm	97	.20
5	500 gm	123	.25
6	600 gm	148	.29
7	700 gm	170	.34
8	800 gm	196	.39
9	900 gm	218	.43
10	1000 gm	243	.48

PRECAUTION :

Weight should be placed centrally on plate form, otherwise you will get faulty readings.