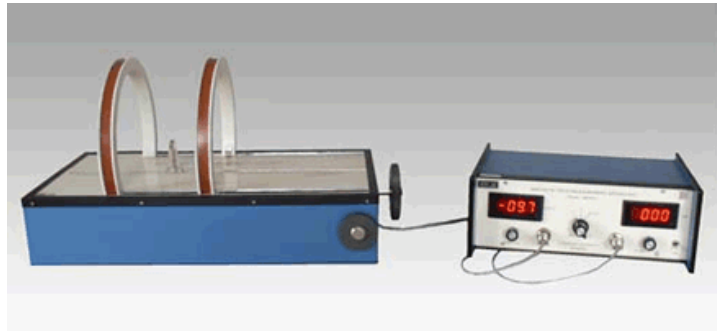


## Magnetic Field Measurement Apparatus

### Introduction

The experiment consists of two coils, Constant Current Power Supply and Gaussmeter. The Gaussmeter probe is mounted on a rail with a scale. It can move smoothly and precisely for measurement of magnetic field along the centre of the coils.



### The following studies can be carried out with the set-up:

1. Study of magnetic field due to one coil and calculation of its diameter.
2. Study of principal of super-imposition of magnetic field due to 2 coils by keeping the distance between the coils at  $a$ , greater than  $a$  and less than  $a$ , where  $a$  is the radius of the coil.

### Legend:

Line 1	Magnetic Profile when the distance between the coils is greater than $a$
Line 2	Magnetic Profile when the distance between coils is equal to $a$
Line 3	Magnetic Profile when the distance between coils is less than $a$ – Superimposition overlaps completely

### Apparatus consists of the following:

#### 1. Digital Gaussmeter

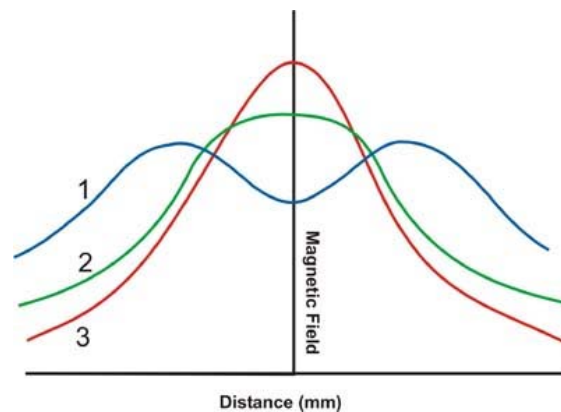
Range: 0-200  
Resolution: 0.1G  
Accuracy: 0.5%  
Display: 3½ digit 7 segment LED with autopolarity.

#### 2. Two Coil

Diameter: 200mm  
Number of turn: 1000

#### 3. Constant Current Power Supply

Current: 0-0.5A Smoothly adjustable  
Line Regulator: 0.2% for 10% mains variation.  
Load Regulator: 0.2 % for 0 to full load.  
Display: 3½ digit 7 Segment LED Display.  
Protection: Against overload/ short current.



The 2 coils are mounted on platform one coil is fixed and other coil move smoothly on a rail along with the axis of the coils.

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