

Magnetic Induction 4.4.02-01/15



What you can learn about ...

- Maxwell's equations
- Electrical eddy field
- Magnetic field of coils
- Coil
- Magnetic flux
- Induced voltage

Principle:

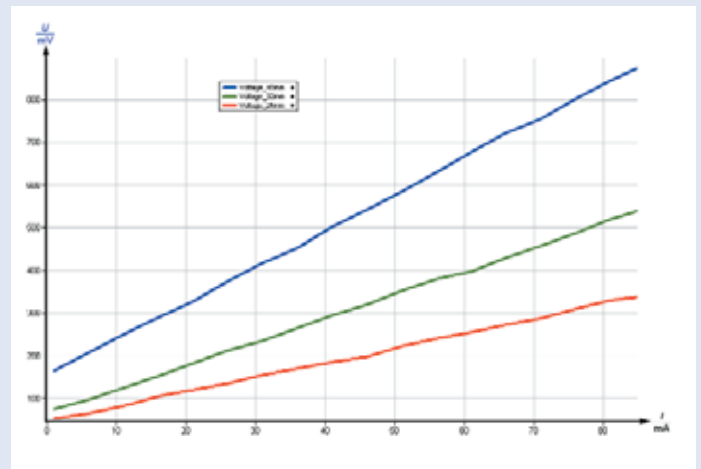
A magnetic field of variable frequency and varying strength is produced in a long coil. The voltages induced across thin coils which are pushed into the long coil are determined as a function of frequency, number of turns, diameter and field strength.

Set-up of experiment P2440215 with FG-Module

What you need:

Experiment P2440215 with FG-Module		
Experiment P2440201 with counter		
Function generator	13652.93	1
Digital counter, 4 decades	13600.93	1
Digital multimeter 2010	07128.00	2
Field coil 750 mm, 485 turns/m	11001.00	1 1
Induction coil, 300 turns, $d = 40$ mm	11006.01	1 1
Induction coil, 300 turns, $d = 32$ mm	11006.02	1 1
Induction coil, 300 turns, $d = 25$ mm	11006.03	1 1
Induction coil, 200 turns, $d = 40$ mm	11006.04	1 1
Induction coil, 100 turns, $d = 40$ mm	11006.05	1 1
Induction coil, 150 turns, $d = 25$ mm	11006.06	1 1
Induction coil, 75 turns, $d = 25$ mm	11006.07	1 1
Connecting cable, 4 mm plug, 32 A, red, $l = 75$ cm	07362.01	4 2
Connecting cable, 4 mm plug, 32 A, blue, $l = 75$ cm	07362.04	2 1
Connecting cable, 4 mm plug, 32 A, blue, $l = 200$ cm	07365.04	1 1
Cobra3 BASIC-UNIT	12150.00	1
Power supply 12V/2A	12151.99	2
Data cable 2 x SUB-D, plug/socket, 9 pole	14602.00	1
Software Cobra3 PowerGraph	14525.61	1
Software Cobra3 Universal recorder	14504.61	1
Measuring module Function Generator	12111.00	1
PC, Windows® 95 or higher		

Complete Equipment Set, Manual on CD-ROM included
Magnetic Induction P24402 01/15



Induced voltage as a function of current for different coils.

Tasks:

- Determination of the induction voltage as a function
1. of the strength of the magnetic field,
 2. of the frequency of the magnetic field,
 3. of the number of turns of the induction coil,
 4. of the cross-section of the induction coil.