

E 4.02 THE PATTERN OF MAGNETIC FIELD LINES

Material:

Qty.	Description	Location
1	Conductors on acrylic plates, set of 3	8
1	Connecting lead, red, 25 cm	22
1	Connecting lead, black, 25 cm	23
1	Power supply 1 ... 12 V AC/DC	31

We want to find out the pattern of fields around different types of current carrying conductors.

Experiment 1:

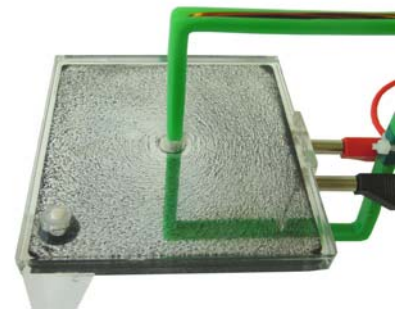
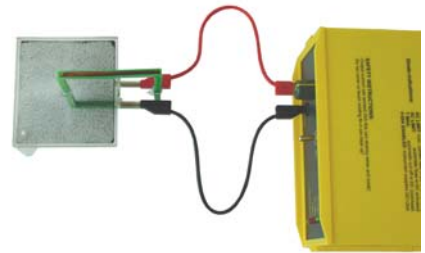
Take the straight conductor on acrylic plate and shake it, until the iron filings in the fluid are spread around the complete plate. Arrangement according to the diagram. The switch on the front panel of the power supply is in "OFF" position. Choose a voltage of 6V.

Switch on to **DC**, but

after a duration of about 5 seconds !!!

switch off again.

By knocking on the plate, the iron filings show the pattern fields around a straight current-carrying conductor.



Experiment 2:

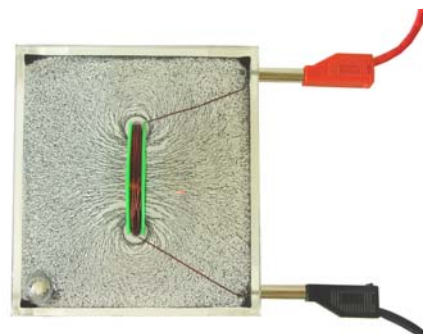
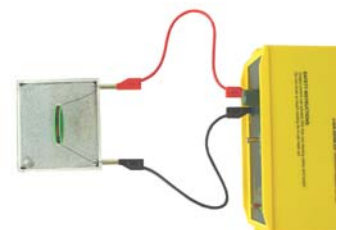
Take the loop conductor on acrylic plate and shake it, until the iron filings in the fluid are spread around the complete plate. Arrangement according to the diagram. The switch on the front panel is in "OFF" position. Choose a voltage of 4V.

Switch on to **DC**, but

after a duration of about 5 seconds !!!

switch off again.

By knocking on the plate, the iron filings show the pattern fields around a circular current-carrying conductor.

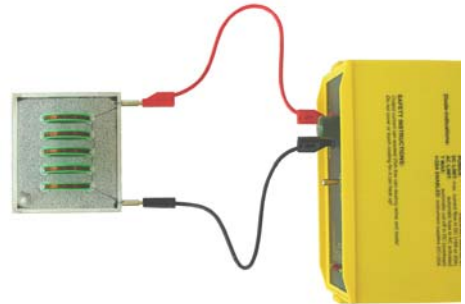


Experiment 3:

Take the coil conductor on acrylic plate and shake it, until the iron filings in the fluid are spread around the complete plate. Arrangement according to the diagram. The switch on the front panel is in "OFF" position. Choose a voltage of 6V.

Switch on to **DC**, but

after a duration of about 5 seconds !!!
switch off again.



By knocking on the plate, the iron filings show the pattern fields around a current-carrying coil.

