

## High-Current Sensor 1000545

### Instruction Sheet

10/15 Hh



#### 1. Safety instructions

- In order to avoid damage to the sensor resistor, adhere strictly to the current and power limits mentioned below.
- Do not exceed a maximum duration of 15 s for a maximum current of 20 A, while taking readings. Allow the sensor to cool for 10 mins.
- Use safety connection leads.

#### 2. Description

Sensor box for measuring electric current in AC and DC circuits.

Shunt resistance measurement method.

For connecting inputs and outputs, use experiment leads with 4-mm banana plugs.

CAUTION: This sensor box is not automatically recognised by the interface.

#### 2.1 Contents

1 Sensor box

#### 3. Technical data

Measurement range:	0 to $\pm 10$ A
Max. current:	$\pm 20$ A for 15 s
Sensor type:	Shunt resistance 5 m $\Omega$ / 2 W
Accuracy:	<1 %

#### 4. Operation

- Insert into the current path via the sockets **I+** and **I-**, maintaining the proper polarity for DC. When measuring AC, the polarity is not significant.
- Set up a connection from the sockets **U+** and **U-** to the sockets  $U_A^{in}$  or  $U_B^{in}$  of the 3B NETlog™ interface, maintaining the proper polarity.

## 5. Sample experiment

### 5.1 Measuring the magnetic field of a current-carrying coil

Apparatus required:

1	3B NETlog @230 V	1000540
or		
1	3B NETlog @115 V	1000539
1	High-current sensor	1000545
1	Magnetic field sensor	1000558
1	Field coil	1000591
1	DC power supply unit 16 V/20 A	1002771
1	Set of 15 experiment leads	1002841

- Set up the experiment according to Fig. 1

In order to build up a measurable magnetic field, a current of up to 10 A must flow into the field coil. At 10 A, the high-current sensor supplies a voltage of 50 mV which is proportional to the current. The selected measurement range is 200 mV at the employed voltage input of the interface.

- Connect the magnetic field sensor to the interface.
- Increase the current in the field coil from 0 to 10 A in steps of 0.5 A and record the corresponding flux density (Fig. 2).

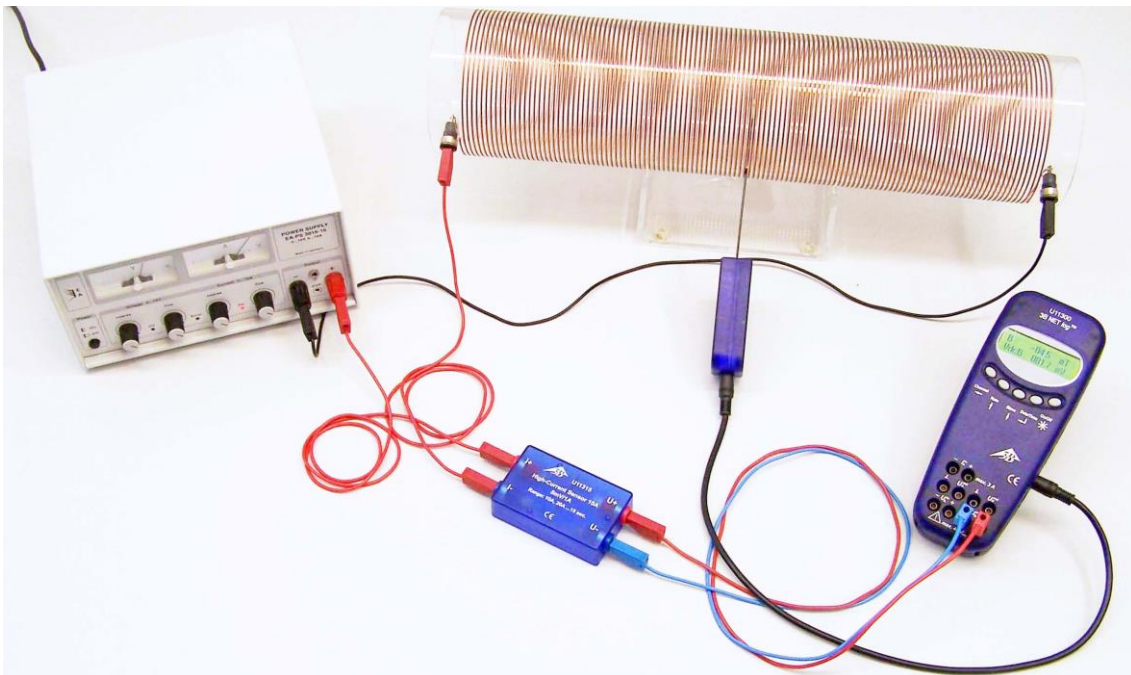


Fig. 1: Measuring the magnetic field of a current-carrying coil

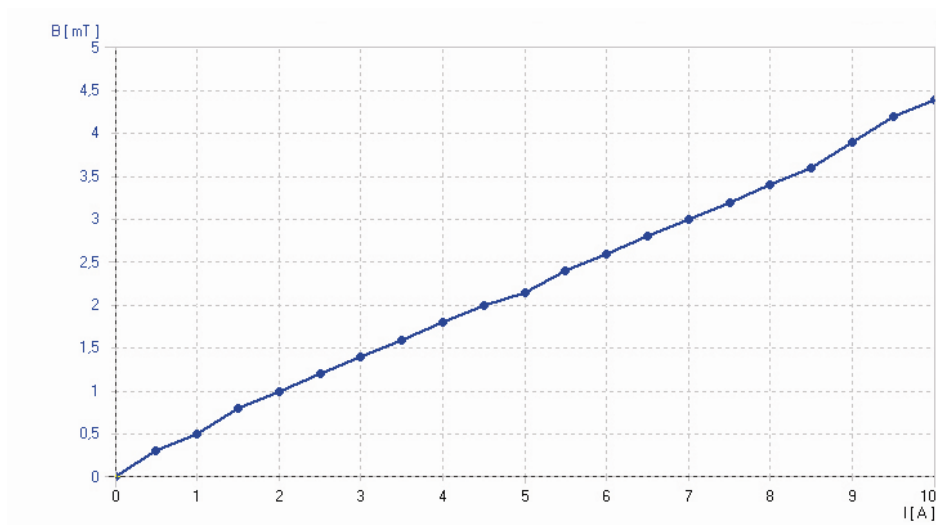


Fig. 2: Magnetic field against current