CURRENT BALANCE KIT - small

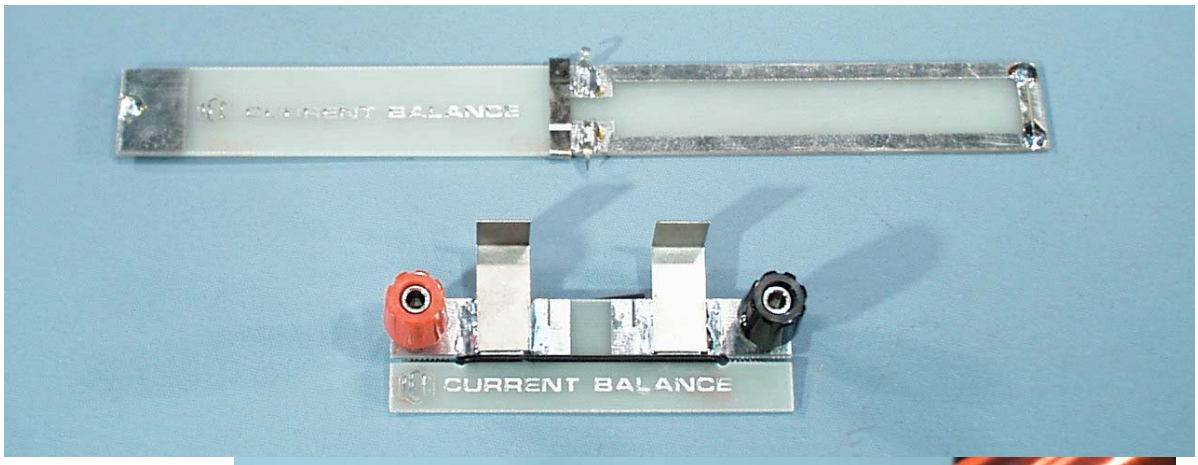
Cat: EM1230-001

GENERAL DESCRIPTION: contents:

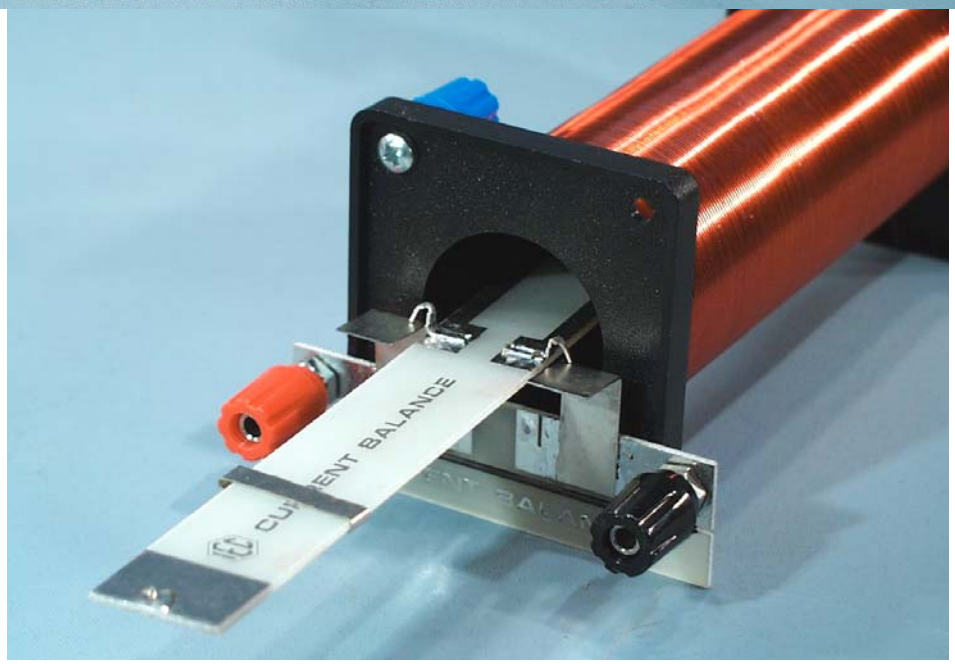
- lx Balance beam with sliding weight, pivots and pointer.
- lx Platform with terminals and metal plates for the pivots to rest on.
- lx Rubber band for attaching the Platform to the end plate of the coil.

NOTE: For use with the standard 'IEC' Air Cored Solenoid EM0090-001. The Air Cored Solenoid is not part of the kit.

EM1230-001 (beam & platform)



Fitted to an Air Cored Solenoid



Physical size: **Single turn balance blade:** **Weight:**

Designed and manufactured in Australia by Industrial Equipment and Control Pty Ltd

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ABN 55 056 072 694
PO Box 420 Yamba NSW 2464
Phone (02) 6645 8111 Fax (02)66458125

ASSEMBLY:

The platform is designed to fit to the face of the Air Core Solenoid end plate and to be flush with the bottom edge. Place the platform against the coil end plate and stretch the rubber band around the coil end plate to hold the platform firmly to the face of the bobbin end plate. The metal platforms and the terminals should point forward and the bottom edge of the platform and the bottom edge of the coil end plate should be touching the table together.

Gently place the balance beam on the two metal pivot support platforms. They should now support the balance beam approximately along the centre line of the hollow solenoid body with the pointer furthest from the solenoid coil. With the tip of a pencil or similar, adjust the sliding weight strip on the beam so that the beam balances horizontal.

Connect 0-20V.DC power source to the terminals of the solenoid coil and an 0-6V.DC. power source to the platform terminals. The current to the platform terminals should be in series with a power rheostat so that the current can be altered. The current into the balance beam should be limited to about 2 to 3 amps so that damage does not occur to the circuit board tracking or the small pivots. It will be noticed that when current passes through the metal loop on the balance beam, whilst current in the coil creates a magnetic field, the balance is forced to deflect in one direction. Choose the direction of current flow through the coil or the beam so that the pointer on the tip of the balance beam moves upwards as the current increases.

The experiment involves placing very small weights on the end of the balance beam to restore a balance and to measure and document the coil current, the balance beam current flowing and the weight applied.

CAUTION:

Remember as the coil and beam conductors become warmer, the resistance will rise and the current will fall. If available, use 'Constant Current' power sources so that the set currents will not alter when the copper temperature rises.

- To prevent burning of the balance contact points and possible damage to the circuit board tracking, do not pass currents in excess of 3A through the beam.
- For correct balancing, the copper pivots of the balance beam should be sharp and in good condition. If damaged, sharpen them slightly with a very fine file.
- For correct balancing it is important that, when viewed from the edge of the beam, the tips of the pivots should be flush with the upper surface of the beam material. If the tips are bent too low, the beam will be high, will be unstable and will never balance. If tips are bent too high, the beam will hang further below the pivot level and it will be very stable but its sensitivity will be poor.

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