

CURRENT BALANCE KIT - small

Cat: EM1230-001 fits the Air Cored Solenoid

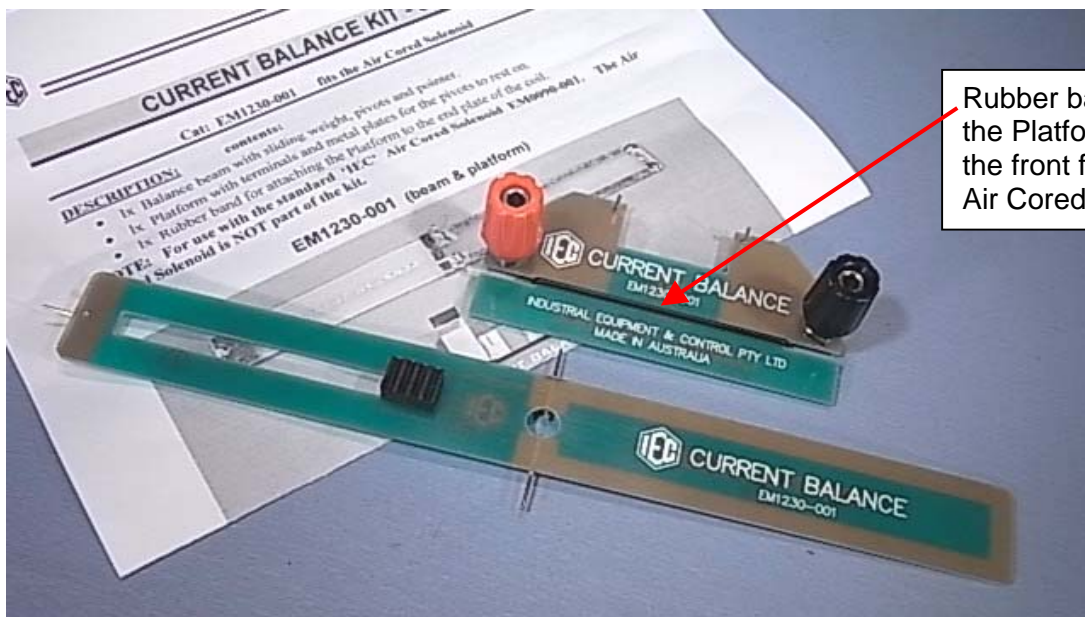
DESCRIPTION: contents:

- 1x Balance beam with sliding weight, pivots and pointer.
- 1x Platform with terminals and metal plates for the pivots to rest on.
- 1x 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)

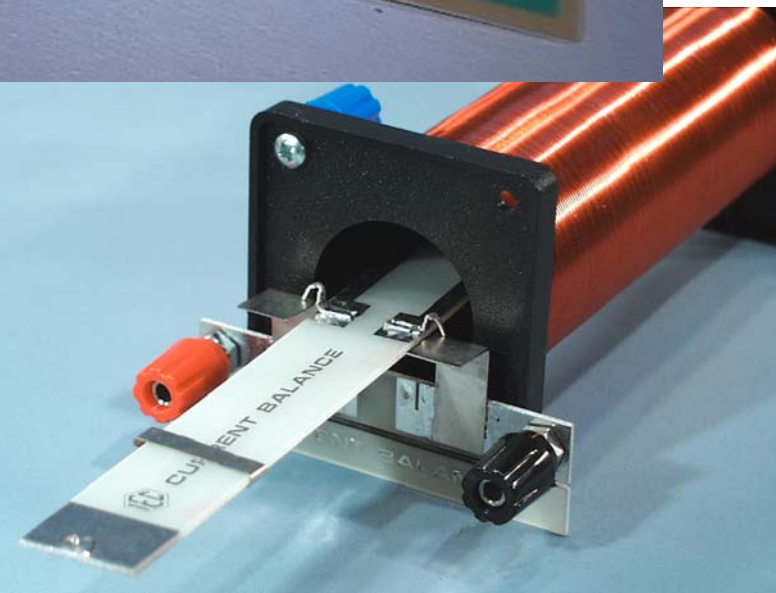


Rubber band holds the Platform firmly to the front face of the Air Cored Solenoid.

The earlier version of the IEC Current Balance Kit is shown fitted to an IEC Air Cored Solenoid (EM0090-001).

This earlier model used a metal strip around the beam but the latest model uses a slot with a sliding mass for better accuracy.

The weight is to balance the beam before any current is passed through either the beam conductor or the air cored coil.



Single turn balance blade & support brackets:

Weight: 0.05 kg

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**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 end plate. The metal pins, on which the beam will balance, must point forward and the bottom edge of the platform and the bottom edge of the coil end plate should rest on the table together.

Gently place the pins from the balance on the two metal pins from the platforms. The beam should now be supported approximately along the centre line of the hollow solenoid body with the pointer facing away from the solenoid coil and placing the current carrying conductor on the beam inside the coil. With the tip of a pencil or similar, adjust the sliding weight in the slot so that the beam balances horizontal. To check horizontal, a small rule can be used to measure the distance from the table to the pivot and also to the pointer. The beam should be made to be very close to 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 pointer to restore a balance and then to measure and document the coil current, the balance beam current flowing and the weight applied. Students or Teachers can make their own weights from fine wire ... or

The weight set of 10g, 20g, 40mg and 60mg with tweezers is IEC cat: EM1230-050

CAUTION:

Remember that as the coil and beam conductors carry current they will become warmer and 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 wire pivots of the balance beam should be smooth, clean and in good condition. If damaged, gently scrape them smooth and clean again.
- For correct balancing the older model permitted the alteration of the pivots. The later model uses wire pivots that cannot be moved. This design change has made the instrument easier to use and provides better results.

Designed and manufactured in Australia

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