

AMPLIFIER, DC

for Electromagnetic Induction etc.



LB0071-001 Very Low Impedance Current Amplifier

Description:

This IEC device designed to amplify very small DC currents to a value that may be easily measured on a standard bench meter. Amplification or gain is adjustable from 1:10 to about 1:1000 so that a very small input current of say 1 microamp can provide an output current of approx. 1mA into either a normal bench meter or a multimeter.

Low Impedance: The input impedance is extremely low so that input current will flow even if the applied voltage is extremely small. For example, a single turn of wire moved adjacent to a magnet produces an extremely small voltage, but, using this amplifier, it will produce a readable deflection on a 0-1mA meter.

Bi Directional: The unit will operate for both positive and negative currents. A centre zero meter can be used since both the input and the output of the amplifier are bi-polar for handling positive and negative currents.

Meaning of "Low Impedance":

If the current to be measured or detected comes from a very low voltage source, say 0.00001 volts, it is very important that the resistance of the measuring circuit is low. For example, to obtain 10 microamps from a source of 0.01 millivolt (0.00001V), the resistance into the measuring device would need to be less than 1 ohm.

The voltage generated when the single conductor is rotated around the magnet of the IEC 'Electromagnetic Induction Apparatus' is very small. This amplifier has been designed to detect the current from this very low voltage and amplify it.

When specifying the resistance of an amplifier's input circuit, the term 'impedance' is normally used.

Length: 115mm	Width: 100mm	Height: 40mm	Weight: 170g
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INDUSTRIAL EQUIPMENT & CONTROL PTY.LTD.

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Instructions for Use:

Do not connect any power source directly to any terminals.

When a milliammeter is connected to the output sockets and the input sockets are short circuited, there should be close to zero current flowing in the output. If current is flowing in the output, the instrument should be adjusted for zero output current.

Setting instrument zero:

- Connect an 0-1mA bench meter or multimeter to the output sockets.
- Short circuit the input sockets (join them together).

Press the 'ON' button on the front panel and, while holding the button pressed, adjust the control until the output is zero mA. This zero setting should not require alteration very often.

Setting instrument Gain:

The Gain is not accurately calibrated, but current amplification can be adjusted from approx. 1:10 (at minimum) to approx. 1:1000 (at maximum).

Connections for normal use:

- Connect an 0-1 milliammeter (preferred) to the output sockets. Other meters can be used: e.g. 100-0-100uA, 500-0-500uA, 0-10mA, 0-100uA etc.
- Connect very low current source to the input terminals. e.g. Franck Hertz tube anode, the IEC Electromagnetic Induction instrument, a wire sweeping past a magnet, a Mutual Induction coil And so on.
- Press 'ON' button for meter on the output to read amplified input current.

Battery:

Battery is standard type #216 9V transistor battery. Battery life is approx. 50 hours of actual current measuring time.

If current is applied to the input sockets but the output no longer operates a meter, it is possible that the battery needs replacement. To replace the battery, remove the rear cover and unsnap the old battery from its mount.

Battery:	9V transistor battery type 216
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Designed and manufactured in Australia

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