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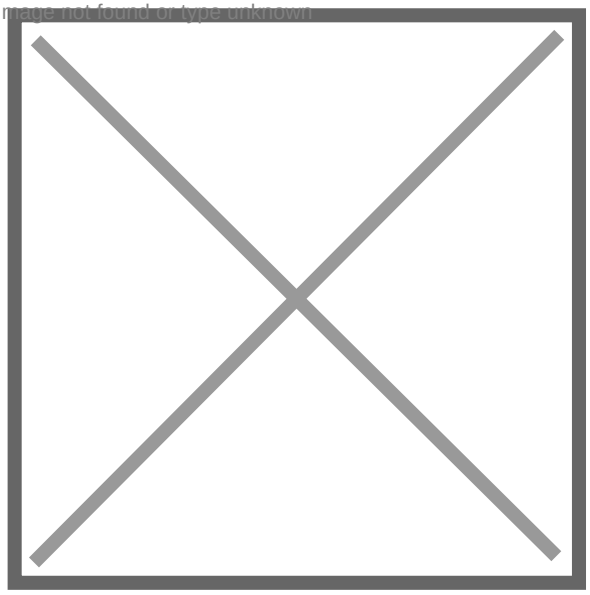
Product Name :

Apparatus for Studying f.e.m. and Internal Battery and Battery Resistance

Product Code :

SCL-241/030

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Description :

Apparatus for Studying f.e.m. and Internal Battery and Battery Resistance (Product Code: SCL-241/030) is a physics experiment kit used to measure the electromotive force (EMF, written f.e.m. in the name) and the internal resistance of a battery in school and college electricity practicals. Students work with three (3–4.5) V batteries in their own boxes and read current and terminal voltage on digital meters while a rheostat varies the load. The kit is made by **Jain Scientific Equipments Pvt Ltd (ScienceLab)**, an OEM manufacturer, at its own factory in Ambala, India.

Specifications

Parameter	Detail
Batteries	3 batteries, (3–4.5) V, each with a corresponding box
Current measurement	Digital ammeter
Voltage measurement	Digital voltmeter
Load control	Rheostat
Connecting leads	6 pairs of conductor wires with red and blue connectors
Power switch	Works with a voltage of 36 V and direct current of 0–3 A
Product code	SCL-241/030
Manufacturer	Jain Scientific Equipments Pvt Ltd (ScienceLab) — OEM
Country of origin	India (made in Ambala, Haryana)

What Is the EMF and Internal Resistance Apparatus Used For?

A battery never delivers its full EMF to an external circuit, because part of it is lost across the battery's own internal resistance. With this apparatus, students connect one battery in series with the rheostat, the digital ammeter and the power switch, and place the digital voltmeter across the battery terminals. Each rheostat setting gives a new pair of current and terminal-voltage readings.

Plotting terminal voltage against current gives a straight line described by V = E ? Ir: the intercept on the voltage axis is the EMF and the magnitude of the slope is the internal resistance. As an electricity experiment kit for school groups, it gives the clearest results when the rheostat starts at maximum resistance, the switch is opened between readings so the battery does not run down, and red connectors always go to the positive terminal. Repeating the test with each of the three batteries lets the class compare their results.

What to Specify When Ordering

- Number of kits required, so that each student group has its own three batteries and pair of meters.
- Whether spare (3–4.5) V batteries should be quoted for later practical sessions.
- Extra red and blue conductor wires if you plan to build additional circuits alongside this