

new! POTENTIOMETRIC ELECTROMETER



measures dc voltages
with source resistances up to 10^{10} ohms
simply... and to 0.01%

With 0.01% limit of error per year, the Keithley 630 measures dc from 300 millivolts to 500 volts from source resistances as high as 10^{10} ohms! No other commercially available instrument offers anything like its minimum off-null input resistance of 10^{13} ohms. Because of its ultra-high input resistance the instrument draws an absolute minimum of current—avoids loading and polarizing the source.

Here's an instrument that combines a potentiometer, a voltage reference and a guarded vibrating-reed null detector into a single package. It frees you from tedious multiple instrument connections. It saves the time lost in fighting ground-loop and pick-up problems. And—it's also a 3% accurate vibrating-reed electrometer.

The 630 fills the need for precision dc measurements from high resistance sources in electrochemical and materials research. It lends itself especially to measuring potentials from piezo-electric crystals, electrochemical cells, organic semi-conductors, biological cells and pH electrodes. Other typical applications include making Hall Effect and fuel-cell studies, silicon and capacitor charge measurements and for measuring FET gate potentials.

Write today for technical engineering note giving complete Model 630 details.

OTHER KEITHLEY ELECTROMETERS

Model 610B —complete dc laboratory	\$565
Model 610BR—rack mounted 610B	\$585
Model 621 —37 ranges, line operated	\$390
Model 600A —54 ranges, battery operated	\$395
Model 603 —50 kc bandwidth amplifier	\$850

POTENTIOMETRIC ELECTROMETER

- $\pm 0.01\%$ accuracy or $30 \mu\text{v}$, whichever is greater.
- 1 mv fs null sensitivity on vibrating-reed electrometer.
- 30 microvolt resolution.
- 10^{13} ohms input resistance at 1% off null (infinite at null) 0-500 v.
- 500 v floating operation off chassis gnd.

VIBRATING-REED ELECTROMETER

- 1 mv fs to 500 v in 10 voltage ranges.
- 10^{13} or 10^{10} ohms input resistance, 1 mv to 1 v.
- accuracy $\pm 3\%$ of full scale.
- less than 2 mv per day zero drift.
- 60 db line freq. rejection on 1 mv range.

1v, 1ma recorder output.

PRICE: \$1575



**KEITHLEY
INSTRUMENTS**

12415 Euclid Ave. • Cleveland, Ohio 44106

dc microvoltmeters / differential voltmeters / high voltage supplies

papers were presented, all in English except nine in Russian and one in French. All papers have English abstracts, and discussions and meeting summary are also in English.

The collection appears in two volumes: The first contains 27 papers on dynamics of solids and five on magnetic systems; the second has thirteen papers on dynamics of liquids, fourteen on molecular dynamics, and seven on experimental methods. Volume 1 (461 pp.) costs \$9.50; Volume 2 (574 pp.) costs \$11.50. Either or both can be ordered from the National Agency for International Publications, 317 East 34th St., New York, N. Y. 10016.

Electrical constants and units

The National Bureau of Standards has issued a wallet card entitled *Electrical Engineering Units and Constants*. It lists major electrical quantities and units and their symbols and provides rounded values for physical constants most often used in electricity. The list is intended to be an editorial-usage guide for NBS authors and publications. The card is NBS Miscellaneous Publication 268 and can be purchased from the Superintendent of Documents, US Government Printing Office, Washington, D. C., 20402, for ten cents (\$6.25 per hundred).

Crystallography transactions

The American Crystallographic Association is starting a new publication entitled *The Transactions of the American Crystallographic Association*, which will report symposia at ACA meetings. The first volume reports the symposium on "Accuracy in X-ray Intensity Measurement" which was held at Suffern, N. Y., in February, 1965. Authors of papers in this issue are: B. W. Batterman, W. C. Hamilton, W. H. Zachariasen, R. A. Young, T. C. Furnas, Jr., and J. Ladell. Sidney Abrahams is the editor of this issue.

The *Transactions* will be distributed free to members of the American Crystallographic Association. Libraries and nonmembers can obtain copies from Polycrystal Book Service, PO Box 11567, Pittsburgh, Pa. 15238. The first volume costs \$3.50.