

# The Cary 401 Vibrating Reed Electrometer. (We should have called it the Cary 0.00000000000000000001)

The Cary 401 vibrating reed electrometer detects currents on the order of  $10^{-17}$  ampere, charges as small as  $5 \times 10^{-16}$  coulomb and potentials down to  $2 \times 10^{-5}$  volt from high impedance sources. Its list of standard features includes solid state circuitry, multiple resistor input switching, remote input shorting, critical damping, measurement of potentials from grounded sources, and master-slave operation. And it can be rack or bench mounted.

So, if your application is in mass spectrometry, radioactivity, physical measurement or biomedical research, the Cary 401 can tackle just about any problem you've got to solve. For example:

#### MASS SPECTROMETRY

The 401 provides sensitive, stable ion current measurements in any mass spectrometer system with an optional remote ranging modification available for computer-controlled systems. And, in isotope ratio studies such as uranium 238/235, a pair of our electrometers can determine ion ratios with an accuracy of about 0.02%.

#### RADIOACTIVITY

Combine a Cary 401 with one of our 100 ml to 14.8 liter flow-type ionization chambers and you'll have a radioactivity analysis system without equal. One capable of detecting as little as  $10^{-6}$  microcurie of carbon-14 or  $10^{-5}$  microcurie of tritium per cc of air, or measuring trace quantities of sulfur-35, iodine-131 and phosphorous-32 in gases.

Other radioactivity applications include the determination of tagged compounds from

the effluent of gas chromatographs, in-vivo metabolism studies, and the monitoring of radioactive compounds in reactor stack gases and nuclear power plant atmospheres.

#### PHYSICAL MEASUREMENTS

With the 401, you can investigate resistance, charging, hysteresis, polarization, absorption and dielectric phenomena. Or study the photoelectric, thermoelectric and electrochemical properties of matter. Semiconductor studies include conductivity, resistivity, impurity and Hall effect measurements. And, because input resistance is greater than  $10^{16}$  ohms, the 401 is ideal for measuring transistor leakage currents, diode reverse currents and MOS FET gate resistances.

#### BIOMEDICAL RESEARCH

When measuring ion transfer, potentials, and resistances across membranes, the 401 gives unmatched performance. Other biomedical applications include in-vivo respiratory analyses of  $C^{14}O_2$ , intermediary metabolism investigations, polysaccharide synthesis and degradation analyses and gas chromatographic studies of steroid and fatty acid molecular systems.

Twenty-four years of experience stand behind the Cary 401, the world's finest commercially available vibrating reed electrometer. By far. For complete details, write Cary Instruments, a Varian subsidiary, 2724 S. Peck Road, Monrovia, California 91016. Ask for data file P103-81.

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