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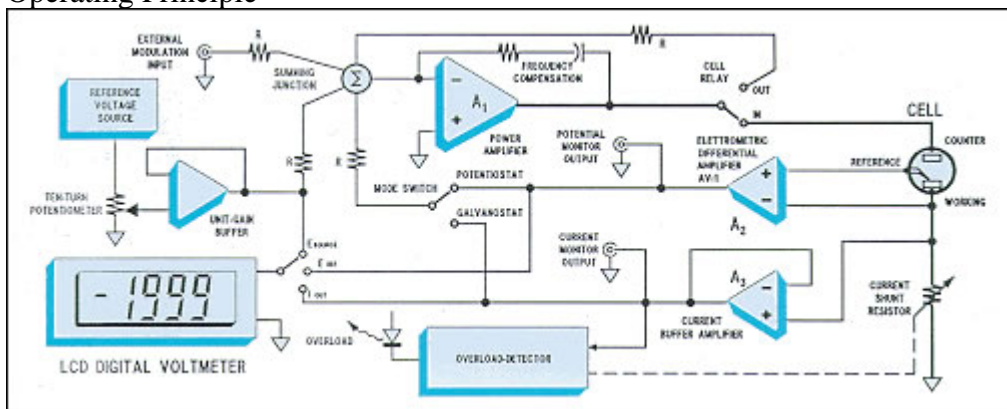
General features

- $\pm 22V \pm 1.24A$
 - Lowest cost
 - High-current capability
 - Interfacing facilities
 - 4 1/2 digit LCD
- Continuous operation
 - Rugged construction

The Model 2049 has been designed to offer a rugged and reliable instrument at the lowest possible price. This goal has been achieved without sacrificing the specifications or material quality.

This instrument is well suited for routine purposes and long-term applications such as corrosion measurements under stress or whenever it is required to perform continuous measurements without immobilizing higher-cost instrumentation. The Model 2049 is complete with a 4 1/2-digit LCD display for clear and accurate reading of both current and potentials. These signals are also permanently available as low-impedance replicas at the front-panel in order to simplify the connection of external devices. The low-noise characteristics make the Model 2049 well suited for low-current applications, while the extreme simplicity of the commands together with the fully-protected circuitry make this potentiostat the ideal choice for industrial and classroom applications.

Operating Principle



The main amplifier A1 contains the power stages and provides to the output current, voltage swing, gain, short-circuit protection and the summing node for the various inputs and feedback. The electrochemical cell is connected with the COUNTER electrode to the output of A 1 and the WORKING electrode to the electrical common with a set of calibrated shunt resistors for precise current measurement. The differential amplifier A 2 measures the voltage between the REFERENCE and WORKING and provides the negative feedback signal for potentiostatic mode operation. A 3 is a unity-gain buffer amplifier for the current signal and for negative feedback in galvanostatic mode. The reference source is connected to a multi-turn potentiometer for precise setting of the cell potential. All signals (current, reference and standard source) can be monitored with the built-in DVM.

Technical Specifications

- Output voltage: $\pm 22\text{V}$
- Output current: $\pm 1.2\text{A}$ (Continuous)
- Output current (Peak): $\pm 1.6\text{A}$ (5 sec peak)
- Controlled potential range: $\pm 5.000\text{V}$
- Controlled potential resolution: 1 mV
- Operating modes: Potentiostat or Galvanostat (floating or grounded)
- Galvanostat ranges: 7 decades $1\mu\text{A}$ up to 1A
- Galvanostat setting resolution: 0.1% of the selected range
- Reference input leakage current: $< 5 \times 10^{-11}\text{ A @ } 25^\circ\text{C}$
- Overall response time:
 - (Potentiostat, 1kOhm load); 0.7 μsec
 - (Potentiostat, full load); 1.2 μsec
- Response time as galvanostat: (100 mA range); 8 μsec
- Output ripple and noise:
 - (No load) - 100 μV peak-to-peak
 - (Full load) - 250 μV peak-to-peak
- Potential stability:
 - (VS line voltage) - 100 μV (10% variation)
 - (VS temperature) - 10 $\mu\text{V}/^\circ\text{C}$
 - (VS time) - 100 $\mu\text{V}/\text{week}$
- Display: 4 1/2 digit LCD, 20mm characters
- Overload protections:
 - Voltage (reference input) - $\pm 100\text{V D.C. continuous}$
 - Current - Permanent output short-circuit allowed
- Interfacing capability: Digital I/O for cell and current ranges.
- Dimensions & weight: 440x150x420mm depth, 12kg



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