



SNS COLLEGE OF TECHNOLOGY

Coimbatore - 35

An Autonomous Institution



Accredited by NBA –AICTE and Accredited by NAAC –UGC with ‘A++’ Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

DIGITAL MULTIMETER

II YEAR/ III SEMESTER



What is Multimeter?



An instrument designed to measure electric current, voltage, and usually resistance, typically over several ranges of value.



Why it is called a multimeter?



The multimeter can make many tests, so it is often called "multitester". When measuring resistance it acts as an ohmmeter, showing ohms. For volts it would be a Voltmeter. Sometimes it is called a mixture of things like Volt/ohm meter or VOM.



Types of Multimeter



1) Analog Multimeter



2) Digital Multimeter



An analog multimeter uses a needle that moves along a scale to indicate the value of the measurement. Analog multimeters are cheaper, more durable, and more responsive than digital ones

Digital multimeters are measuring instruments that can measure quantities such as voltage, current, and resistance. Measured values are shown on a digital display, allowing them to be read easily and directly, even by first-time users.



Types of Digital Multimeter

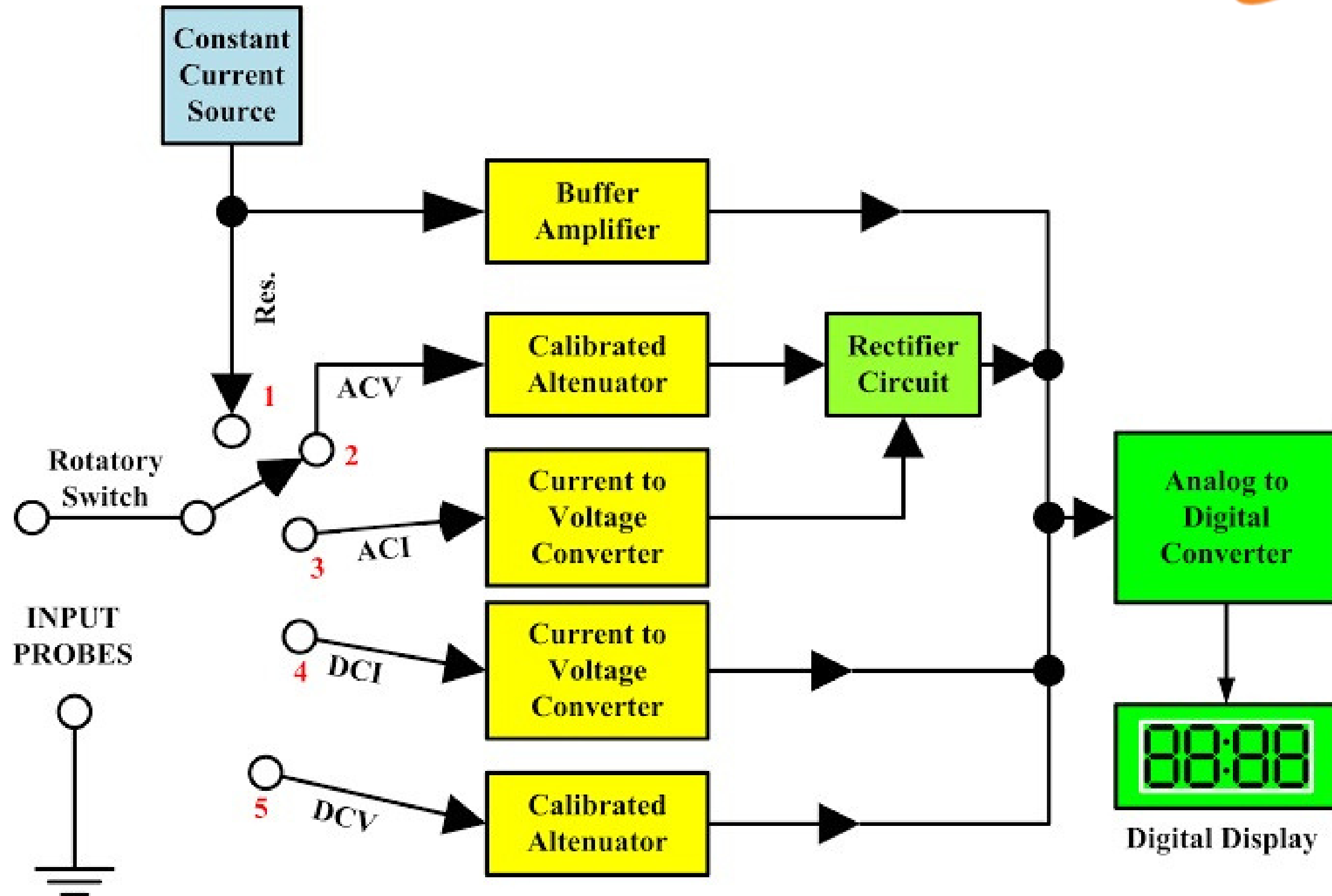


- 1)Fluke Digital Multimeter
- 2)Clamp Digital Multimeter
- 3)Autoranging Digital Multimeter.

Fluke digital multimeter	Clamp digital multimeter	Autoranging digital multimeter
		



BLOCK DIAGRAM





Working of DMM

A digital multimeter (DMM) measures electrical values with precision. Here's how it works:

1. Voltage Measurement:

- **Input:** Connect the multimeter probes to the voltage terminals.
- **Operation:** Measures potential difference (voltage) between the two points in a circuit.
- **Display:** Shows the voltage in volts (V) on the digital screen.

2. Current Measurement:

- **Input:** Break the circuit and connect the multimeter in series.
- **Operation:** Measures the flow of electric charge (current).
- **Display:** Shows current in amperes (A) on the digital screen.

3. Resistance Measurement:

- **Input:** Connect the multimeter probes to the resistance terminals.
- **Operation:** Measures opposition to the flow of current (resistance).
- **Display:** Shows resistance in ohms (Ω) on the digital screen.

4. Continuity Test:

- **Input:** Connect the probes to two points in a circuit.
- **Operation:** Checks if there is a complete path for current flow.
- **Display:** Usually an audible beep or a visual indication for continuity.



5. **Diode Test:**

- **Input:** Connect the probes to the diode under test.
- **Operation:** Determines if a diode is functioning properly.
- **Display:** Shows the forward voltage drop.

6. **Capacitance Measurement:**

- **Input:** Connect the multimeter probes to the capacitance terminals.
- **Operation:** Measures the capacitance of capacitors in a circuit.
- **Display:** Shows capacitance in farads (F) on the digital screen.

7. **Temperature Measurement:**

- **Input:** Use a temperature probe or thermocouple.
- **Operation:** Measures temperature at the probe.
- **Display:** Shows temperature in degrees Celsius or Fahrenheit.

8. **Frequency Measurement:**

- **Input:** Connect to the frequency terminals.
- **Operation:** Measures the frequency of an AC signal.
- **Display:** Shows frequency in hertz (Hz) on the digital screen.

Overall, a digital multimeter provides precise readings, making it a versatile tool for troubleshooting and measuring various electrical parameters in circuits.



Advantages of Digital over analog Multimeter

- 1) Readings are accurate and fast compared to analog meters.
- 2) Easy to understand the readings especially for beginners.
- 3) Smaller in size and cost-effective.
- 4) It can measure both Ac and Dc voltages.
- 5) It provides us Precise and accurate values.

Thank
You