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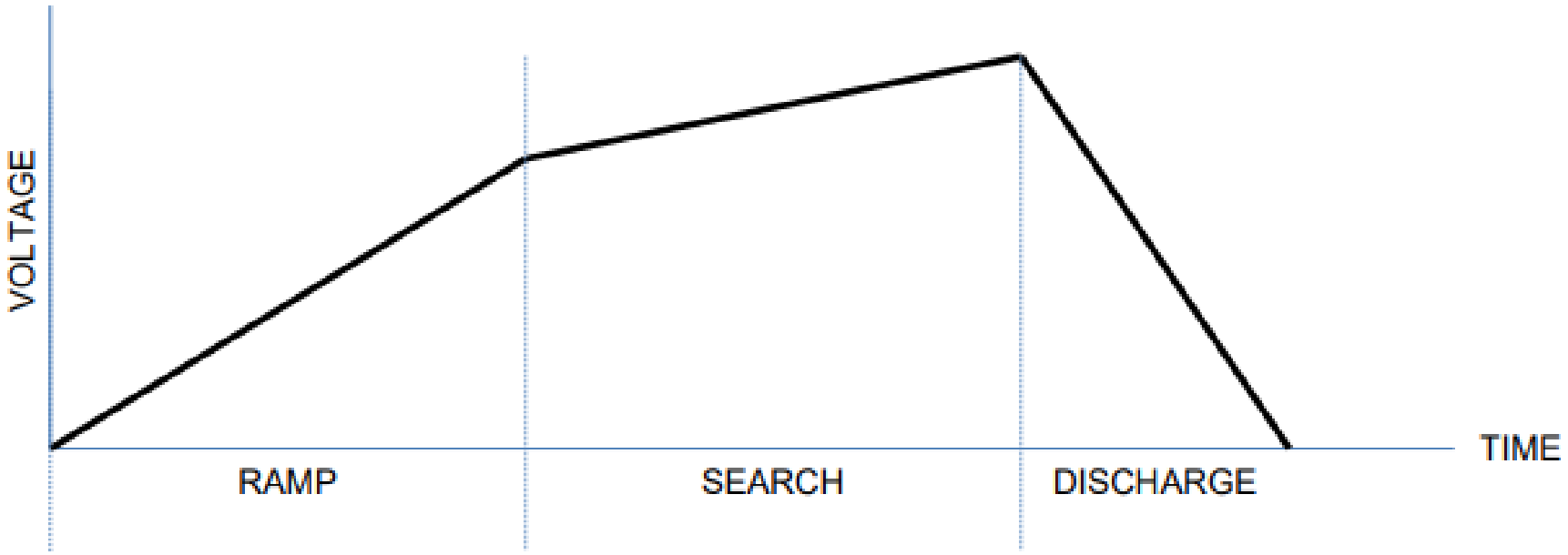
Fundamentals of Industrial Measurement Technology

HIPOT – DC Breakdown Voltage



ProDSP Post Series Nr.36.

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Breakdown voltage measurement is applied to components that are **required to activate above a defined voltage level**. A typical example is the **varistor**, especially in inverter-based applications.

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How does the measurement work?

- **First**, during a **ramp phase**, the upper limit of the o**perating voltage** range is reached while controlling the effects of **parasitic capacitances**.

How does the measurement work?

- This is followed by the **search phase**, where the **voltage is increased** more slowly and the **current is monitored**.

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How does the measurement work?

- When the **current suddenly increases**, the measuring instrument immediately switches to discharge and reports the voltage value at which **breakdown started**.

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How does the measurement work?

- If **no current increase** occurs within the search range, the measurement is considered **invalid**, as the protection device **did not activate**.

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Measurement accuracy is determined by the slope of the search ramp

- **Slower** search → more **accurate** breakdown voltage
- Too **fast** a search → parasitic effects may **distort** the result

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