



## IS 13779 :2020- AC static watt-hour meters, class 1 & 2

AC static watt-hour meters of Class 1 and Class 2 are required to measure electrical energy consumption accurately under standard operating conditions. **Class 1** meters have an accuracy of  $\pm 1\%$  of the true value, while **Class 2** meters offer an accuracy of  $\pm 2\%$ . These meters must function reliably over a wide range of voltages, frequencies, and load conditions, ensuring minimal error and stability. Additionally, they are required to operate within specified temperature and environmental limits, providing consistent performance over their lifespan.

The Indian Standard, IS 13779, specifies requirements for AC static watt-hour meters, and has the tests for the following requirements:

1. **Insulation Properties:** It specifies test measure ability to prevent flow of electrical current from unintended paths, ensuring the safe and efficient operation of the meter.
2. **Accuracy Requirements:** It specifies tests to measure the deviation allowed between the actual energy consumed and the energy measured by the meter.
3. **Electrical Requirement:** It specifies tests on Voltage Range, Current Range, Frequency Range, Power Factor Range, Rated Power Consumption, Accuracy Class of the meter.
4. **Electromagnetic Compatibility:** It specifies tests which ensure that the meter functions properly without causing or being affected by electromagnetic interference (EMI).
5. **Climatic Influences:** It specifies the environmental conditions that can affect the accuracy and reliability of the meter's performance, e.g., temperature, humidity, dust & pollution.
6. **Mechanical Requirements:** It specifies tests to verify physical attributes and design specifications that ensure the meter operates reliably under normal environmental and operating conditions.

The Electrical Wires, Cables, Appliances and Protection Devices and Accessories (Quality Control) Order, 2003 mandates that all AC static watt-hour meters sold, manufactured, or imported in India shall comply with IS 13779 and display the BIS Standard Mark, which ensures safety, quality, and performance requirements of IS 13779.