IS 16444 (Part 2): 2017

a.c. Static Transformer Operated Watthour and Var-Hour Smart Meters, Class 0.2S, 0.5S and 1.0S Part 2 Specification Transformer Operated Smart Meters

IS 16444 (Part 2): 2017 defines specifications for transformer-operated, alternating current (a.c.) static watthour and var-hour smart meters, designated for accuracy classes 0.2S, 0.5S, and 1.0S. These smart meters measure both **active** (watthour) and **reactive** (var-hour) energy for **single** and **three-phase systems**, operating within a frequency range of 50 Hz. They are designed for metering applications in high-voltage (**HV**) and low-voltage (**LV**) environments, providing data essential for grid management and customer billing under Advanced Metering Infrastructure (**AMI**) systems. Key features include **measurement accuracy**, **communication for data exchange**, and **compatibility with Smart Grid applications**.

Customers expect high standards of **precision**, **reliability**, and **durability** from these meters, especially in high-demand environments. Desired qualities include **measurement stability across load variations**, **effective data communication to utility systems**, **resilience to tampering**, and **suitability for varying environmental conditions**. These meters are also expected to handle remote data updates and programming commands from the utility provider, facilitating efficient grid management and power usage monitoring.

To meet these consumer expectations, the standard mandates strict quality and testing criteria. It specifies requirements for metrological accuracy, communication reliability, and environmental durability based on **IS 14697 standard**. Meters undergo routine, type, and acceptance tests, ensuring they meet accuracy and power consumption thresholds, withstand climatic and mechanical stress, and provide electromagnetic compatibility. Communication modules must also adhere to **IS 15959 series of standards**, ensuring seamless data exchange and remote meter reading capabilities.

Compliance with Indian regulatory requirements for wireless communication is mandatory, ensuring reliable data transmission in a Smart Grid setup. The standard collectively ensures that the meters **maintain consistent performance,** meet **consumer expectations**, and **support effective energy management** within **India's Smart Grid initiative**.