

Real-Time Compensation of Instrument Transformer Dynamics Using Frequency-Domain Interpolation Techniques

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Abstract

The dynamics of current and voltage transformers often limit the accuracy of measurements in high-voltage power systems. These dynamics may not be well known, but frequency-response data obtained on the instrument transformer may be available for a finite set of frequencies. A compensating digital filter that approximately inverts the instrument transformer's frequency response is calculated using frequency-domain interpolation techniques. The Power Quality Analyser makes use of the compensating filter technique for improved accuracy of its real-time power quality calculations and analyses.