

THE NORTH AMERICAN SYNCHROPHASOR INITIATIVE WEBINAR SERIES

Digital Voltage and Current Sensors Farnoosh Rahmatian, NuGrid Power



In this webinar Farnoosh Rahmatian will discuss how voltage and current sensors are the eyes and ears of the electric power grid. Traditionally, each specific application/function is performed by a device connected to dedicated sensors (e.g., instrument transformers) with very specific performance characteristics. With the evolution of the grid, there is a need for significant instrumentation investment to “see and hear” the grid better. There are substantial economic advantages to having sensors that have the performance (better linearity and bandwidth) to feed a multitude of applications concurrently, and digitization is key in achieving that. Digital voltage and current (V/I) sensors, if planned and used properly, can support the measurement needs of the grid economically, and lead to a more resilient and efficient grid.

In this webinar, we look at some of the challenges and possibilities that digital V/I sensors offer, including:

- High-level overview of V&I sensing technologies
- Waveforms (point-on-wave) versus calculated quantities (e.g., phasors)
- Measurement speed, sampling rate versus bandwidth
 - The need to observe faster phenomena in the evolving grid
- Measurement data sharing amongst applications and importance of time synchronization
- Layered data management architecture for reliability and resiliency

Dr. Rahmatian is co-founder and president of NuGrid Power Corp. During the past 30 years he has contributed to several techniques for power system measurement and automation. He is a Professional Engineer and a Fellow of the IEEE for contribution to optical voltage and current sensors. He is the immediate past Chair of the IEEE Power & Energy Society’s (PES) Technical Council, active at PES Power System Instrumentation and Measurements as well as Power System Relaying and Control Committees. Farnoosh is the co-lead of NASPI PSRVTT; he is also active at CIGRE, IEC, and CSA. His present focus areas include synchronized measurement systems and applications in active grids, non-intrusive high-speed measurement of high voltage on the grid, optical sensors, digital substations, microgrids and grid resiliency efforts. Farnoosh has co-authored more than 90 technical papers and 11 patents.

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