



imagination at work



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GE Multilin & TyDSA

Invites you to participate in this tutorial:

The State of the Art in Protection and Automation: Concepts and Applications

***Thursday May 25, 2006 Cordoba Room
CONVEX Center 7th floor***

Join us to explore in detail the latest in Communications, Automation and Data Management applications that enhance Protection, SCADA and Power Systems Operations.

- 8:00 a 8:30** **Registration**
- 8:30 – 9:00** **Introduction – What’s new – Alberto Bernardes**
- What is new in Substation Automation and Communications for Power Systems
 - Ethernet Switches and Media Converters
 - Convergence of Protection Systems, Digital Fault Recorders, Sequence of Events Recorders and Meters in Substations
- 9:00 a 10:30** **IEC 61850 Overview – Mark Adamiak**
- Why IEC 61850 makes multiple IED communications easier, simpler, faster and more reliable
 - Intra-Substation applications to improve security and dependability of protective schemes
 - Inter-Substation applications such as Wide Area Protection Schemes and Network Protection Schemes
- 10:30 a 11:00** **61850 Application Examples – Hyder DoCarmo**
- 11:00 – 11:15** **Coffee Break**
- 11:15 – 11:45** **Ethernet Switching – Mark Adamiak**
- Switching Concepts
 - Improving transfer speed and data integrity
 - Security

11:45- 13:15 Synchrophasors: Concepts and Applications – Mark Adamiak

- Overview of the Operational Fundamentals of Synchrophasor technology
 - Quick overview of the IEEE C37.118 standard (just released)
 - Mathematical Fundaments
 - Anatomy of Synchrophasor Systems
- Differentiators of the Synchrophasor IED's of GE Multilin
- Applications to determine real time line loading and prediction of dynamic load capability
- Applications to Wide Area Protection Schemes

13:15- 14:00 Lunch (annex to Cordoba Room)

14:00 – 14:30 High Impedance Fault Detection – Mark Adamiak

- What is a High Impedance Fault detection
- The technology for High Impedance Fault detection

14:30 - 15:30 Introduction of the New UR^{Plus} Platform. The State of the Art in Protection, Communications and Control IED's – Mark Adamiak

- Integrated and configurable color screens for Alarm Panels and HMI
- Capability of High Resolution Digital Fault Recorder (DFR)
- Flexible and scalable architecture
- Outstanding Communications capability with IEC 61850 and GOOSE enabled, plus DNP 3.0 and three IP addresses for back up.

15:30-16:00 Enervista Suite, HMI enhanced with IEC61850 (Configuration monitoring and control) - Hyder DoCarmo

- Easy access to information and simple to figure
- Download and installation of Enervista ViewPoint Monitoring enabled with IEC61850

16:00 – 16:15 Coffee Break

16:15- 17:15 Creating your own HMI with Enervista ViewPoint Monitoring IEC61850 - All

- GOOSE/GSSE messages examples
- Alarm Panels with Enervista

17:15 – 17:30 Final Comments

The Tutorial will be presented by:

Mark Adamiak, GE Multilin
Hyder Do'Carmo, GE Multilin
Abraham Romero B., GE Multilin

For questions please contact:

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**The Tutorial is free of charge. By invitation only.
There will be simultaneous translation to Spanish**

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Mark G. Adamiak (F'2005) received his Bachelor of Science and Master of Engineering degrees from Cornell University in Electrical Engineering and an MS-EE degree from the Polytechnic Institute of New York. From 1976 through 1990, Mark worked for American Electric Power (AEP) in the System Protection and Control section, where his assignments included R&D in Digital Protection and Control, relay and fault analysis, and system responsibility for Power Line Carrier and Fault Recorders. In 1990, Mr.

Adamiak joined General Electric, where his activities have included development, product planning, and system integration. He presently is the Advanced Technology Programs manager and is responsible for identifying and developing next generation technologies for the utility and industrial protection and control markets. In addition, Mr. Adamiak has been actively involved in the development of the IEC61850 communication standard and was the Principle Investigator on the EPRI / E2I Integrated Energy and Communication Systems Architecture (now IntelliGrid) project – a guide for development of utility communication architectures. In 1986, he was the winner of the Eta Kappa Nu (HKN) society's "Outstanding Young Electrical Engineer" award. He is a member of HKN, a Fellow of the IEEE, past Chairman of the IEEE Relay Communication Sub Committee, a member of the US team on IEC TC57 - Working Group 10 on Substation Communication, chairman of the Technical Committee of the UCA International Users Group and a registered Professional Engineer in the State of Ohio.

Hyder DoCarmo (M '98), a native of Brazil, has bachelor and master degrees in electrical engineering from Louisiana State University and Texas A&M University, respectively. Between 1998 and 2000, he worked as an electrical design engineer for Transocean Offshore Drilling, in Houston, TX. From 2000 to 2005, Mr. DoCarmo worked for CenterPoint Energy (Houston, TX) in the Substation Projects System Operations group, where he was involved in conceptual design of relay schemes, relay settings, testing and commissioning, and relay coordination studies. Since 2005, Mr. DoCarmo has joined GE Multilin as an Applications Engineer. Mr. DoCarmo is a member of the IEEE Power Systems Relaying Committee's Systems Protection Subcommittee and is a registered Professional Engineer in the State of Texas.



Abraham Romero Bugarin. Originario de la Ciudad de México. Recibió el título de Ingeniero Eléctricista con especialización en Sistemas Eléctricos de Potencia por la Escuela Superior de Ingeniería Mecánica y Eléctrica del Instituto Politécnico Nacional. Se ha desempeñado en el Departamento de Ingeniería de Aplicación y Soporte Técnico de la compañía Transmisión y Distribución S.A. de C.V., la cual es agente de General Electric Multilin en México. Sus funciones principales son de ingeniería de aplicación, ajuste, programación y análisis de datos del Sistema Eléctrico de Potencia y relevadores de protección. Ha participado en diversos cursos, tales como Advanced Metering, Protection, Control, Communication and Distributed Resources presentado por la Universidad de Clemson, Protección de Líneas de Transmisión, Protocolos de Comunicación presentados por GE Multilin. Es también Instructor Certificado por GE Multilin para los productos de Protección y Control de ésta empresa desde el año 2002.