

IEC 61850 Comprehensive & Independent Hands-on Training

Dear All, The interest in performing such an event in Australia is high. We are proposing the program shown below.

There may be an interest to do more hands-on: 1 1/2 days seminar plus 1 1/2 days hands-on training ... or an in-house training. We would appreciate receiving your needs soon. Please contact us if you are interested. Thank you!
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The Future of Power Systems Requires Comprehensive Know-how

IEC 61850 is the global standard for Power System Automation (generation, transport, distribution ... high, medium and low voltage levels). It allows for an open and "future proof" design, different architectures and possibilities to combine products from multiple vendors. In order for users and system integrators to utilize the benefits of IEC 61850 it is necessary for power utilities, integrators and vendors to education their most crucial asset – people, and start the migration to IEC 61850.



Training is performed in small groups mixing theory and practice

The popular STRI and NettedAutomation hands-on training provides both theory and practice on the application of IEC 61850 in a substation. During the training we follow the planning, design and engineering process for real applications all the way to configuration and testing on a real multivendor test installation. We believe real understanding is the result of both knowledge and hands-on experience. Therefore the training offers a unique combination of presentations, demonstrations and practical workshops in smaller groups.

NettedAutomation (Germany) provide training, consultancy and product support services for the application of distributed automation systems and open communications.

STRI (Sweden) is an accredited high voltage laboratory and independent technical consulting company. We offer IEC 61850 consulting services and independent multivendor interoperability testing. STRI's IEC 61850 lab comprises IEDs and tools from ABB, Areva, Siemens and SEL together with test sets from Omicron, Doble and Megger, as well as an IEC 61131-3 programmable PLC from Beckhoff.

Training Content

The three day training consists of the following modules:

- ❖ **Module 1** gives a basic introduction to the IEC 61850 standard for substation applications, power plant applications (hydro, wind, decentralized energy resources) together with a summary with real applications and the demonstration of IEC 61850 software.
- ❖ **Module 2** gives an independent and more detailed presentation of the IEC 61850 standard for substation and device modeling as well as communication principles (GOOSE, Sample Values, Client/Server applications). This module tells you what you need to know for specification, evaluation, verification and maintenance of IEC 61850 systems (whole substations and IEDs), with real examples and demonstration of IEC 61850 specification using IEC 61850-6 (SCL) – THE system configuration language for electric power systems. The latest developments in the preparation of the second edition of IEC 61850, new extensions for haydro power plants, wind turbines and distributed energy resources as well as the use of IEC 61850 in the U.S. DoE efforts for transforming the electric power system into a Smart(er) Grid (NIST Interoperability roadmap) will be presented and discussed. The use of IEC 61499 (Distributed Function Blocks) in cooperation with IEC 61850 for autonomous functions in distribution networks will be presented and discussed.
- ❖ **Module 3: IED interoperability workshop**
IEC 61850 hands-on workshop demonstrating interoperability of protection and control devices from ABB, Areva, GE, SEL, and Siemens, as well an IEC 61131-3 programmable PLC from Beckhoff. In subgroups the participants browse the IED model of each device (using self-description, validation of model and SCL file) and create outgoing GOOSE messages. After lunch the network traffic is jointly analyzed and the reception of GOOSE messages will be configured in subgroups and tested using IEC 61850 compatible test devices. Configuration is also demonstrated using vendor independent tools. Experience in system debugging and network traffic analysis using third party and open source tools is gained.



Training Program

Day 1 – Monday 30st of November (Wednesday 02nd December) 2009

10 ⁰⁰ –10 ¹⁵	Welcome and course introduction	Karlheinz Schwarz, NettedAutomation
10 ¹⁵ –17 ³⁰	IEC 61850 Module 1	Karlheinz Schwarz, NettedAutomation
17 ³⁰ –18 ⁰⁰	Questions, answers and discussions	All

Day 2 – Tuesday 01st December (Thursday 03rd Decmber) 2009

08 ⁰⁰ –17 ³⁰	IEC 61850 Module 2	Karlheinz Schwarz, NettedAutomation
17 ³⁰ –18 ⁰⁰	Questions, answers and discussions	All

Day 3 – Wednesday 02nd December (Friday 04th December) 2009

08 ⁰⁰ –17 ⁰⁰	IEC 61850 interoperability workshop, Module 3	Nicholas Etherden, STRI
17 ⁰⁰ –18 ⁰⁰	Final questions, answers and discussions	All

If we have 20 or more attendees per event we will split the hands-on training in two groups with two experienced trainers from STRI.



Participants of previous trainings in Ludvika (Sweden), Frankfurt (Germany), Turin (Italy)

Registration and Price

Modules 1-3: 1.750 EURO (plus Australian tax if applicable)

Please read more on www.stri.se/iec61850 and www.nettedautomation.com/seminars.

A formal registration form is attached. Formal registration is required latest November 1st, 2009. We reserve the right to cancel the training course if the number of registered participants is less than 10 at that date. For additional dates and in-house hands-on training courses please contact us (contact see below).

Curriculum vitae of Lecturers

Karlheinz Schwarz received his diploma (masters degree) in Information Technology at the University of Segen (Germany) 1982. He has held a management position within Siemens and has an immense experience in the migration from proprietary or other solutions to standard compliant solutions. He is involved in many standardization activities within IEC, CENELEC, IEEE and DIN since 1985. He received in 2007 the IEC 1906 Award "for his strong involvement in the edition of the IEC 61850 series, its promotion inside and outside IEC, and specifically its adaptation for wind turbine plant control". He has since many years as an independent consultant provided training courses and consulting services for IEC 61850 all over the world. (http://nettedautomation.com/download/Netted-Schwarz-Profile-en_2009-01-21.pdf).

Nicholas Etherden from STRI has a MSc in Engineering Physics from Uppsala University, 2001. He has several years experience from the development of a new IED family for IEC 61850 as application engineer, project manager and product marketing manager at ABB. He is responsible for the STRI IEC 61850 Independent Interoperability Laboratory and a member of IEC TC 57 working group 10 and UCA Iug testing subcommittee.

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