









LABORATORY : ARCHITECTURE AND MAIN CHARACTERISTICS

R&D NESTER

MAIN CHARACTERISTICS

REAL TIME POWER SYSTEM SIMULATION

- Real time servers with a high computational power (up to 90 GHz processing power)
- Different expansion chassis (interfaced) which enable the execution of real time simulations with up to 2000 nodes: 64 Analog Outputs, 224 Digital Inputs and 224 Digital Outputs.
- Also available 16 Analog ports and 24 optical ports (compatible with the standard IEC 61850)
- Different families of software for power system simulation, which enable the simulation of large power networks with up to 2000 buses in EMT simulations and 10000 buses in electromechanical transient stability simulations.

TIME SYNCHRONIZATION SERVICES

- Time synchronization servers, which allow the synchronization of laboratory equipment and devices under test, with the following outputs: PTP, IRIG-B, SNTP, PPS and 10MHz.

IED TESTING

- A complete solution dedicated to IED testing, allowing the generation of GOOSE and sampled value messages to be sent to the device under test, for open loop tests. It also translates GOOSE into hardwired output contacts, and vice versa.
- Easy connection to convert the 3V outputs of the real time power system simulator and test set into 100% IAI.
- A software package to check the IEC 61850 messages.

IEC CONFORMITY TEST SOFTWARE

A software family to check IEC 61850 data model and communication services of the devices under test.

IEC SPECIFICATION AND CONFIGURATION TOOL

A tool that allows the specification and configuration of a IEC 61850 system.

COMMUNICATION NETWORK SIMULATION AND TESTING

- A software package to simulate communication networks, permitting the execution of assessment studies, without real devices.
- Devices to inject load in the network and to impair the circulating messages.

ARCHITECTURE

POSSIBLE APPLICATIONS

TESTING

- Prototype development and product conformance testing
- Product type testing
- Testing of protection and automation systems
- Testing in the loop simulation (power network interacting in real time with prototypes, actual IEDs or other devices)

SCENARIO SIMULATION

- Studies for the optimal integration of renewable energy sources
- Power systems transient studies
- Power system performance assessment in line with European connection grid codes
- Analysis of power system events

COMMUNICATIONS

- Performing communication network studies, by means of simulation, to aid in the design of communication networks
- Testing communication network performance (measuring parameters and cause improvements to evaluate the impact in control and automation systems)

CO-SIMULATION

- Performing co-simulation (power system simulation and communication network simulator running simultaneously, interacting with each other)

TRAINING

- Staff training for control equipment operation

CREATING A SMART ENERGY FUTURE













