‖‖‖RTDS Technologies — RTDS NEWS

2018 IEEE PES GM Hospitality Suite (with our friends from Nayak Corporation and the Manitoba HVDC Research Centre)

WHAT'S NEW: SEPTEMBER 2018

The powerful new features and models of RSCAD 5.006

New paper:

Modelling voltage source converters with switched resistance in the sub-timestep

Click here to access the full paper online.

A new paper from RTDS Technologies describes a method for the real time simulation of VSCs using resistive switching in the sub-step environment of the RTDS® Simulator. The new method reduces artificial switching losses to realistic levels and reduces noise associated with L/C fictitious current and voltage oscillations. The result is a much higher quality simulation result, and the lower losses support a higher maximum converter switching frequency at a given timestep.

An explanation and verification of a switched-resistance NPC converter is also available.

The feature discussed in this paper is a new development for the RTDS Simulator with an expected date of later this year.

DON'T MISS THIS

RSCAD 5.006: Unleashing the power of NovaCor

Have you seen our powerful new software version release? RSCAD 5.006 is packed with new features and improved capabilities to allow our users to make even better use of our latest generation of simulation hardware. Get the highlights here first, then head to our client area to download the new software version.

Click here to visit our client area and download the software.

A massive increase in power electronics simulation capabilities

Power electronics simulation is a built-in feature of the RTDS Simulator, allowing users to simulate voltage source converters in dedicated subnetworks running on the standard simulation hardware. These dedicated subnetworks run at a small simulation timestep in order to model high frequency switching. Previously, each core of NovaCor's multicore processor could handle one dedicated small timestep network containing a circuit with up to 45 nodes.

As of fall 2018, users can simulate more power electronics than ever before with the arrival of RSCAD 5.006. The new release takes full advantage of the NovaCor hardware's impressive processing power.

We've increased the capabilities of each core—users can now place two small timestep subnetworks on each core for a total of 90 nodes.
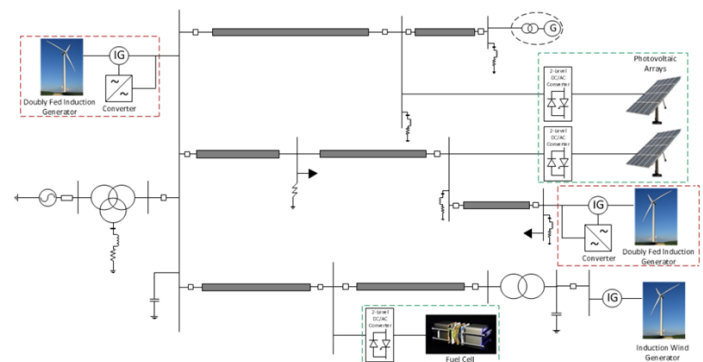
This will allow the efficient simulation of systems containing many converters that must be analyzed with a high level of detail.

Direct input/output access to the fastest power electronic models

The general power electronics solver (GPES), which supports custom converter modelling at timesteps in the sub-microsecond range via FPGA, can now be directly interfaced with external equipment.

Previously, signals for input and output had to be sent to or from the FPGA via the small timestep sub-

-network running on the main simulation hardware. RSCAD 5.006 introduces new direct access to the power electronic models on the FPGA via the fibre ports on the front of the GTFPGA Unit. Analogue output and digital input signals can be directly interfaced to the models from external equipment, with the smallest possible HIL delay for the user.

More innovation in the RSCAD model library

A number of new components have been added to the library with the RSCAD 5.006 release.

Multi-star synchronous machine: The multi-star machine has applications in electric traction and power generation in electric ships and submarines. This component can be configured with 2, 3, or 4 phase stars and has user access to both ends of the stator windings. An ABC to DQ control block for the model has also been added to the library. A small timestep version of the multi-star machine is also available (dual-star configuration), which also has user access to both ends of the stator windings.

New breaker: An exciting development for protection engineers, RSCAD's new breaker component includes options for disconnect switches, internal interlocks, pre-insertion resistors, and built-in circuit breaker status monitoring. The insertion of disconnects does not increase the number of nodes in the network solution.

The new breaker also includes the modelling of physical circuit breaker operating capability, enabling users to model restricted operation.
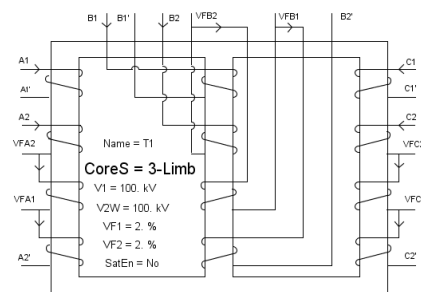
Fuse: The new fuse model is designed to simulate a medium voltage fuse. Five different current ratings are supported. Users can monitor the fuse status and current. Thermal and arcing characteristics are represented in the model.

3P4W UMEC transformer: In this new three-phase, four-winding UMEC transformer model, magnetic coupling between and within all phases is modelled. All of the windings are open, allowing the user to make any connection. An internally faulted model is also available, with two fault locations enabled on the secondary side.

Facilitating simple and effective PHIL testing
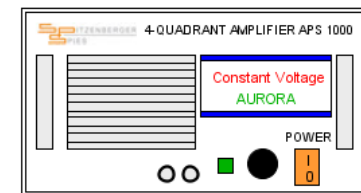
The RTDS Simulator is outfitted with models and features that make it the premier tool for facilitating power hardware in the loop testing of converters, motors, loads, and more. A direct digital link has been developed to connect the Simulator to third-party amplifiers via the Aurora protocol over fibre optic cable. This digital interface reduces delay and simplifies the hardware interface.

New with RSCAD 5.006, the **SPS Aurora component** establishes an Aurora link to various amplifiers from Spitzenberger and Spies. Voltage and current sources are embedded within the model for great ease of use and reduced delay.

In addition to the release of this component, a new **PHIL Report** has been published by RTDS Technologies which details the use of the component, provides a framework for characterizing the PHIL interface (considering amplifier gain, noise, stability, and time delay), introduces a start-up procedure, and describes test cases and results in detail.

Get the new and improved PHIL Report.

Upcoming Events

CIGRE Canada
October 15-18, 2018
Calgary, Alberta

Western Protective Relay Conf.
October 15-18, 2018
Spokane, WA, USA

IEC 61850 Global 2018
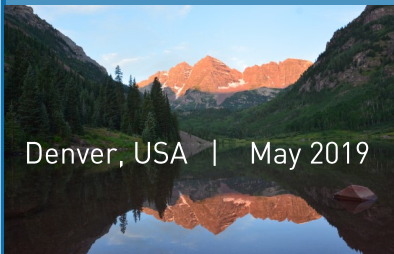October 16-18, 2018
Berlin, Germany

Microgrid 2.0
October 29-31, 2018
Baltimore, MD, USA

ROPEC
November 14-16, 2018
Ixtapa, Mexico

Join us for our North American Conference!

Denver, USA | May 2019

We invite RTDS Simulator users and power industry colleagues to join us in Denver for our Applications & Technology Conference! This is an exciting event of user presentations, networking opportunities, tutorials, and news on the latest developments in real time power system simulation.

We are now accepting abstracts for the meeting. Apply today!

Click here to learn more and submit an abstract.

Experience RSCAD 5.006

Click here to log in to the RTDS client area, where you can access the full RSCAD release notes.

If you have an idea for a new feature, please send it to **feedback@rtds.com**. We want to hear from you!