



## Webinar and Demo: Power-Hardware-in-the-Loop Testing Fundamentals

Wednesday, February 23, 2022

### **Questions and Answers**

#### **Q1: Will the webinar recording and slides be made available?**

Yes. The webinar recording and slides are available to all registrants. A link has been included with this document in the post-webinar email. If you would like to refer a colleague to this webinar, it can be accessed later On Demand, after having been aired, at <https://www.rtds.com/events/webinar-and-demo-power-hardware-in-the-loop-testing-fundamentals/>.

#### **Q2: Can I use the Aurora protocol with an AETECHRON amplifier?**

At this time, we haven't collaborated with AETECHRON to create an Aurora interface between the RTDS Simulator and their amplifier, but it's possible you may be able to use our generic Aurora component to create an interface. You would need some more details about their Aurora link specifications to know if that was possible. Feel free to contact support@rtds.com if you are a user with questions about creating this interface.

#### **Q3: Is the PV panel-microinverter demo an example of a closed loop or open loop PHIL system?**

In this demonstration we perform closed-loop testing.

#### **Q4: Can the four-quadrant amplifier be sourced from RTDS?**

RTDS Technologies does not manufacture amplifiers. For certain projects, we can source them from a third party and provide them alongside the RTDS Simulator. Many users source their own amplifiers and other third-party equipment to be used in conjunction with the RTDS Simulator.





**Q5: Is there a limit to the length of fibre optic cables when using the Aurora protocol? Which is the maximum length you have already used in PHIL?**

The current maximum supported length for an Aurora connection from the RTDS Simulator is 3 kilometres. For PHIL applications, we have successfully conducted tests with fibre lengths up to 200 metres at this time. PHIL interfaces are sensitive to time delay, so this should be considered when experimenting with longer fibre lengths. Also note that using long fibre distances requires a special cable and SFP/transceiver that RTDS Technologies can provide – please contact [marketing@rtds.com](mailto:marketing@rtds.com) for more information.

**Q6: Please explain the power amplifier in detail.**

The amplifier used in this demonstration is a Spitzenberger and Spies APS 1000. For details on this and other four-quadrant amplifiers, we recommend contacting the manufacturers for a datasheet. Our users have successfully used amplifiers from Spitzenberger and Spies, Egston, Ponovo, and other manufacturers for PHIL applications.

**Q7: Is it possible to simulate transient faults?**

Yes, the RTDS Simulator is a real-time electromagnetic transient simulation (EMT) tool. The solution is a time-varying instantaneous value with a typical timestep in the range of 25 to 50 microseconds. Electromagnetic transients, such as faults, can be represented in detail.

**Q8: If I would like to convert a large power system network, let's say 300 buses, that I built PSSE to RSCAD in order to study it with the RTDS – is it possible to know how the network should be segregated in different subsystems? What are the necessary PSSE file formats?**

Our PSS/E to RSCAD conversion tool, which is included with the RSCAD software, requires .dyr, .raw, and .seq files from PSS/E. The program automatically allocates buses to subsystems, finding transmission lines that are long enough to decouple the system. We have documentation for the tool that explains more about the options for subsystem splitting.

*If you have any further questions, please contact [marketing@rtds.com](mailto:marketing@rtds.com).*

