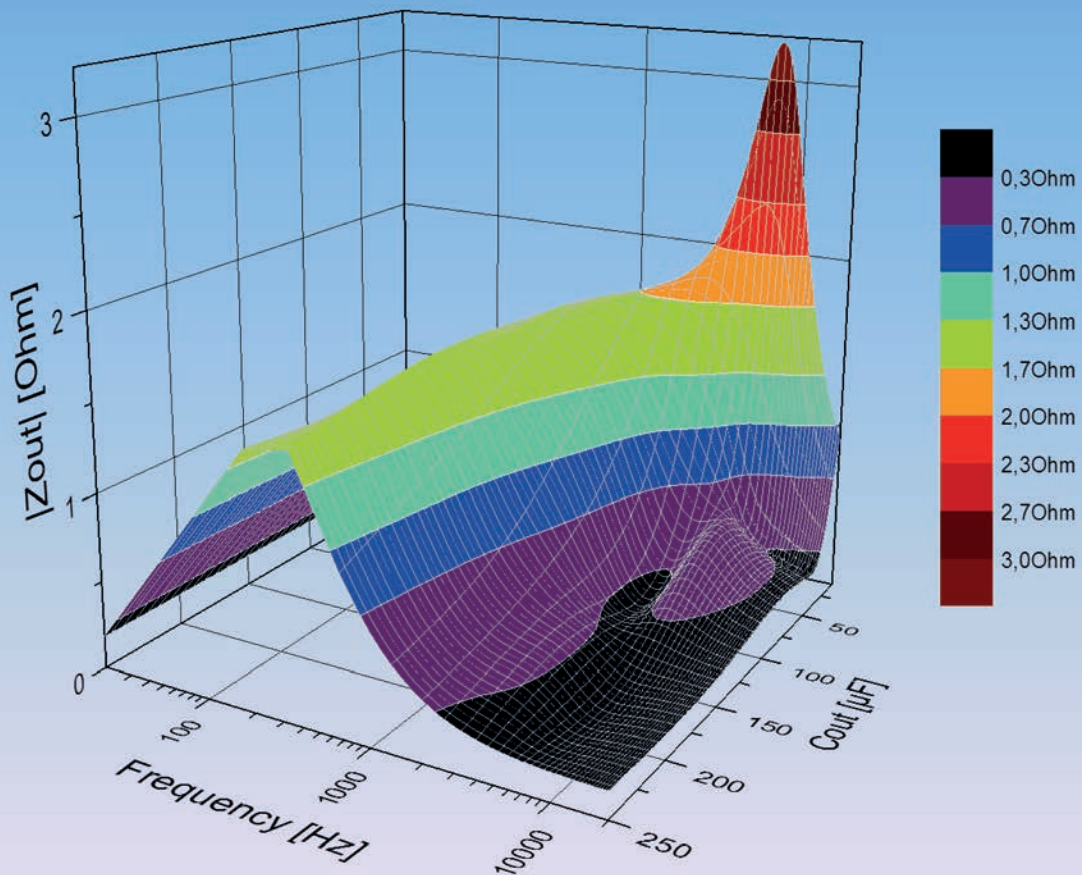
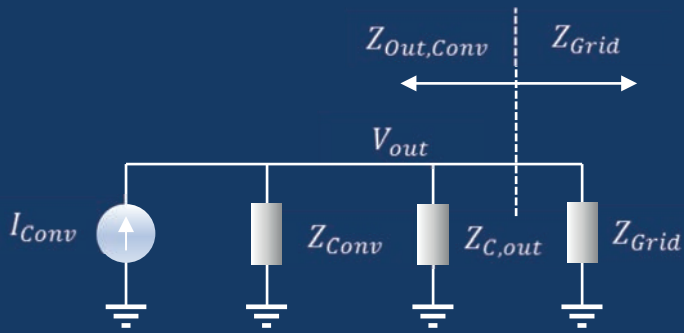


Custom Simulation Models of Power Electronic Systems for Stability Analysis of DC Microgrids





Custom Simulation Models of Power Electronic Systems for Stability Analysis of DC Microgrids

Description

Instability problems because of overlapping impedances are a major issue within **DC Microgrids** that may lead to time-consuming fault diagnostics and delayed commissioning of the system.

Customizable Simulation Models derived from injection based impedance measurements offer a fast and simple opportunity to evaluate stability parameters at each grid node during the design phase.

This leads to an **Optimized Design** of control loops and passive components for grid-interfacing DC/DC converters and an enhanced dynamic system performance.

Fraunhofer IISB's in-house impedance measurement system allows the characterization of converter input and output impedances "under load" in the frequency range between 20 Hz and 500 kHz.

The derived simulation models can be used with any commercial **SPICE** based simulator for transient or AC simulations either stand-alone or in conjunction with other models.

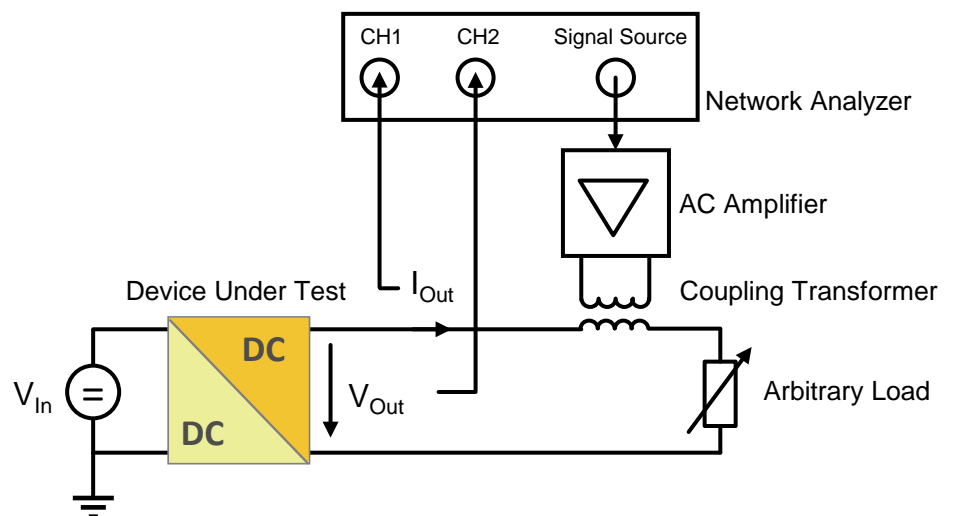
Technical Data

Max. test voltage	800 V _{DC}
Max. probe current	50 A (f > 1 kHz) 25 A (f < 1 kHz)
Min. test frequency	20 Hz
Max. test frequency	500 kHz

Services

- Fully custom linear simulation models of DC/DC converters for commercial SPICE simulators
- In-house wide bandwidth impedance measurement system
- Integral stability analysis of DC microgrids
- Optimized design of control circuits for grid interfacing DC/DC converters for maximum dynamic performance
- Cost optimized design of EMI filters and passive components with respect to system stability
- Fault current estimation and coordination of protection devices
- Customer training courses on system modelling and grid stability

Injection Based Impedance Measurement of DC/DC Converters



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