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Power Electronics & Converter test platforms

The unique solution to characterise & test your systems for MVDC & HVDC applications

Our test benches enable you to push the operating limits of your product to ensure the quality of your design and its reliability.

OVERVIEW

SuperGrid Institute offers you the possibility to assess your Power Converters from different topologies, as well as integrated Semiconductors and Medium Frequency Transformers, thanks to our innovative platforms and test benches that reproduce real-life usage conditions.



POWER ELECTRONICS





AVAILABLE SERVICES

- Test your converters' full operating capacity
- Troubleshoot and fine-tune your device according to real-life operating conditions
- Assess your Medium Frequency Transformers using sinusoidal and square signals
- Characterise semiconductors' static and dynamic behaviour

• Converter & Medium Frequency Transformer design

- Hardware & Software Rapid Control Prototyping
- Gate Drive design & prototyping
- EMC mitigation

This list is not exhaustive. Please contact us to express your needs so we can offer you a personalised service.



DESCRIPTION

Each of our platforms consists of a Faraday cage for EMC immunity, an insulated control command using Optical Fibers and a water cooling circuit.

Converter test platform

We test your converters at nominal & limit voltages and frequency values, unloaded and under full load (backto-back). The test bench control command is an integral part of the platform and can be separated and adapted to accomodate your system.

Semiconductor test platform

Characterisation

Our platforms allow you to validate both the values from the datasheet and the dynamic behavior of your semiconductor when the the converter is in operation.

Reliability

We also perform reliability tests (eg. HTGS, HTGB), enabling you to extensively analyse your semiconductor.

Medium Frequency Transformer (MFT) test platform

Unique in the industrial domain, this platform will allow you to characterise unloaded and loaded MFTs, including short-circuit testing, in a wide range of operating frequencies.



TECHNICAL FEATURES

Platform for Converters

Faraday cage: 5x5x3m, 1m³ max for a single object **EMC shielding:** 100dB, 10kHz - 10GHz

Voltage: up to 75kVdc Power: up to 10MW in back-to-back Size: 5x5x3m, 1m³ max single object Cooling: water, natural or forced convection Control: in dedicated area with Matlab/Simulink CPU and FPGA

Measurements: U, I, F, efficiency **Safety:** integrated interlock system, Connection-to-the ground system



Platforms for Semiconductor characterisation & reliability

In static

Datasheet checking Example: leakage current, breakdown voltage, etc.

In dynamic Test description: double pulse test Faraday cage: 3x3x2m EMC shielding: 100dB, 10kHz - 10GHz

Voltage: up to 10kV Current: up to 3kA Operating temperature: 0 to +270°C Control: from dedicated area with MathLab HMI

Safety: integrated interlock & Connection-to-the ground system





Platform for Medium Frequency Transformers

Faraday cage

Size: 5x5x3m, 1m³ max single object EMC shielding: 100dB, 10kHz - 10GHz

Signal for MFT

Type: sinusoidal, square Unload test: up to 8kVac and 20A Loaded test: up to 1kVac and 500A Frequency: up to 100KHz (harmonics) Noise measurement

Control

From dedicated area with LabView HMI

Safety

Integrated interlock and Connection-to-the ground system



CONTACT

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