



POWER ELECTRONICS SKILLS/EXPERTISE



The **AIT Energy Department** is developing solutions designed to ensure a sustainable energy supply for the future. Our research services are based on longstanding experience, scientific excellence, state-of-the-art laboratory infrastructure and international cooperation in the key areas of tomorrow's energy systems: smart grids, photovoltaics, thermal energy systems, smart cities and smart buildings. We act as a leading innovation partner for national and international industry providing applied research services that give our customers a cutting edge in future markets.

AIT Austrian Institute of Technology GmbH

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Fundamentals

Transferring knowledge and know how into best-in-class products and solutions

- Detailed design calculations of power electronics converters
- Multi-level single and three-phase power bridge topologies
- Custom Medium/High power bridge/stack design
- Magnetics and EMC design

Design

from prototype to production-ready designs

- Design for manufacturability, reliability and robustness
- Schematic capture and PCB Layout design
- Mechanical and Thermal design

Controls

innovative control solutions ready to use in your product

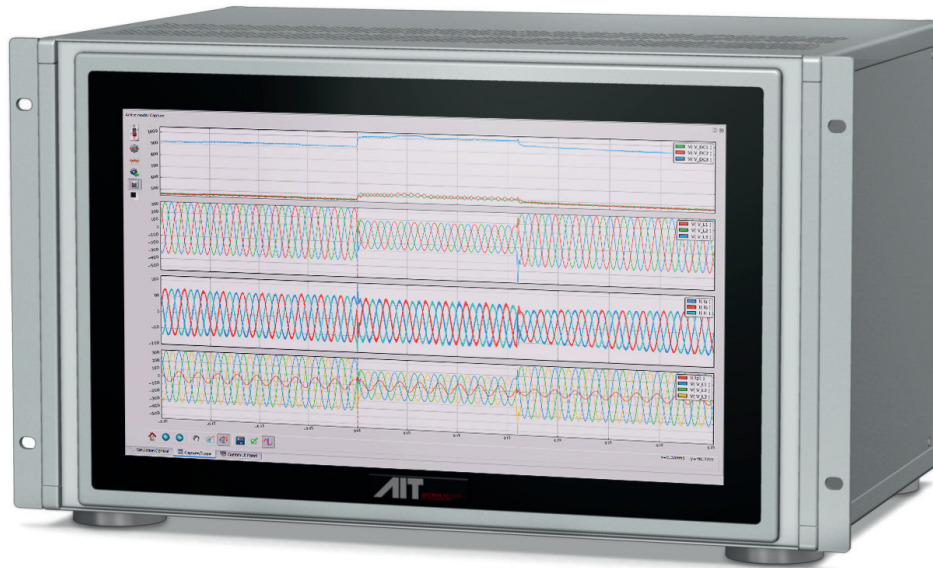
- Advanced digital and analog control strategies
- Grid synchronization and interaction (FRT, Anti-islanding etc.)
- Cutting edge digital controls methods

Software and Firmware development

employing best software development practices

- High level software architecture design
- RTOS compliant DSP/uC Firmware and FPGA HDL code
- Portable application software development





POWER ELECTRONICS DESIGN SERVICES

Product development

accelerated product development utilizing cutting edge rapid prototyping and validation methods

- Simulation and Modeling of Power Converters and Systems
- Controller-hardware-in-the-loop (C-HIL)
- Power-hardware-in-the-loop (P-HIL)

Design pre-certification and regulatory compliance assessment

right on time during early development steps

- Design pre-certification testing and validation utilizing HIL technology
- State-of-the-Art 1 MVA Smart Grid Test Laboratory

Extensive expertise with Smart Grid design applications

design for future grids

- Power Conversion Topologies suitable for Smart Grid applications
- Meeting grid compliance with advanced digital controls methods
- Compliance with various state-of-the-art Information and Communication technologies (ICT) [e.g. IEC 61850]



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