

**Innovative device technology, research
and development services for the
success of your products.**

BUSINESS FIELD

**POWER ELECTRONICS
AND DRIVE SYSTEMS**



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Fraunhofer IEE

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The Fraunhofer Institute for
Energy Economics and Energy
System Technology IEE in Kassel
researches for the national and
international transformation of
energy systems.

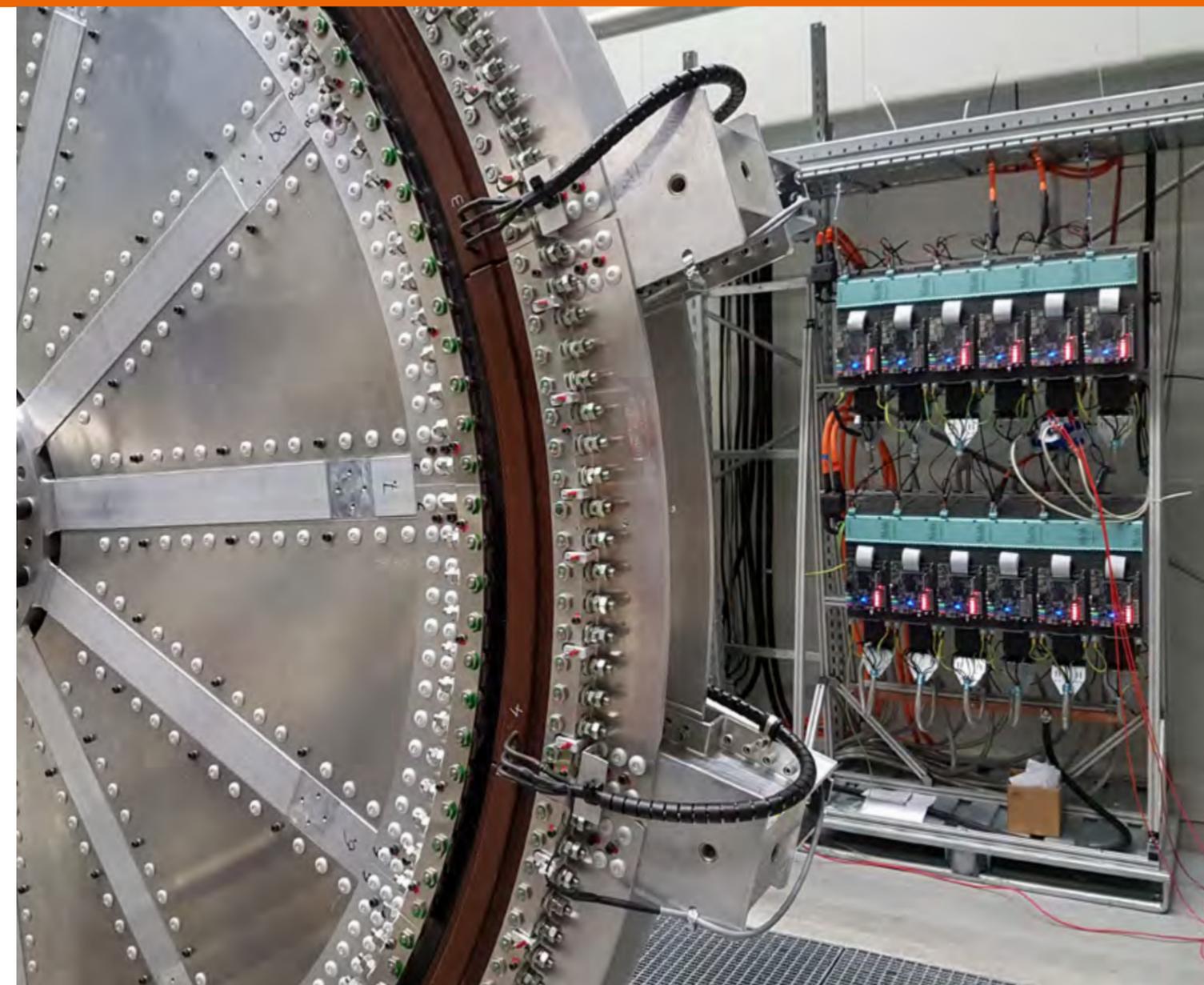
The Institute emerged from the
Energy System Technology branch
of Fraunhofer IWES in 2018 and
was founded as Institut für So-
lare Energieversorgungstechnik
ISET in Kassel in 1988.

WE ARE YOUR RELIABLE PARTNER FOR QUESTIONS REGARDING

- development of components in the field of electric mobility
(cars, railways, maritime vehicles)
- photovoltaic inverter
- stand-alone grid and microgrid inverters
- ring machines and innovative drives
- wind converters
- and much more

WE SUPPORT YOU IN

- development of highly efficient and compact power converters
- controls for stand-alone systems and in the interconnected grid
- electric machines with high torque and high reliability
- optimized software development for DSP and FPGA
- measurement technology for the precise characterization of power
electronic components
- development, conceptual design, planning, installation and commissioning

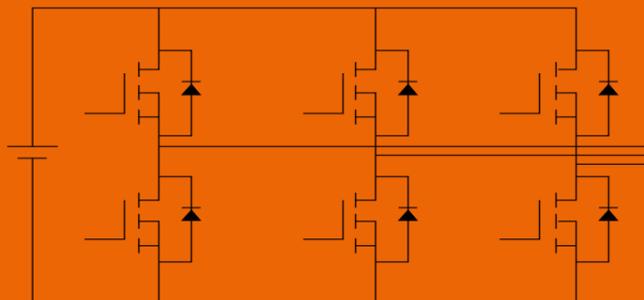


POWER ELECTRONICS AND DRIVE SYSTEMS

Great requirements are imposed on devices, components and software in the area of control, management and grid connection of renewable energy sources and storages as well as electric vehicles.

With our creative development services, processes and solid know-how in the field of hardware and software development we help to develop products and increase their quality.

Examples of this are the wired and wireless grid connection of electric vehicles, as well as generator systems for wind power plants and electric drive systems for ships.



WE OFFER YOU

- Solid research and development services
- Transparent advice
- Optimization of devices and components
- Analyses and studies

1 POWER CONVERTERS

- High efficient components from a few Watts to MW class
- Numerous patented topologies
- PV inverters
- Bidirectional charging technologies
- Uninterruptible power supply
- Wireless power transfer systems
- Battery power converters
- Multilevel converters

- Construction and electromagnetic design of ring generators and ring motors
- Large drives
- Gearless high-power applications
- Maritime drive technologies
- Extended maintenance intervals due to distributed electrical design and control
- Extended lifetime due to axial oscillation control
- Laboratory tests, proof-of-concept

2 ELECTRIC MACHINES AND DRIVES

3 CONVERTER CONTROL AND EMBEDDED SYSTEMS

- Embedded control
- Control of electrical machines
- Parallel operation for grid building
- Inverters in public and island grids
- Ancillary services and power quality
- Patented control concepts (Selfsync)
- Rapid prototyping

- Semiconductor switching cells
- Calorimeter for power electronic components
- Power hardware-in-the-loop systems
- Testing technology for MPP tracking of PV systems - ISET MPP meter
- Photovoltaic irradiation sensors - ISET sensor

4 DEVELOPMENT OF TESTING AND MEASUREMENT TECHNOLOGY