

FACT SHEET

Fraunhofer ISE “Center for Power Electronics and Sustainable Grids” Facilities and Technical Equipment

Power Converters Lab

- Bidirectional DC sources (up to 1000 V / 600 A)
- Machine emulator (160 kVA) and grid simulator (30 kW)
- Load resistance for DC and AC voltage (200 kW)
- Programmable non-linear loads (3-phase, 230 V / 16 A)
- High-resolution, broadband oscilloscopes and sensor heads
- Multi-channel systems and accurate power measurement
- Measurement EMC disturbance (up to 200 A AC / 400 A DC)
- Precision inductivity measurement instrument and impedance analyzer
- Test stand to characterize SiC/GaN semiconductors

Multi-Megawatt Lab

- In-house connection to 110 kV grid (20 kV / 40 MVA transformer)
- Highly accurate, broadband measurement up to 110 kV
- Test fields up to 7 MVA and from 260 V to 1000 V
- PV simulator (2000 V / 1.4 MW)
- Bidirectional battery simulator (750 V / 1 MW)
- High-dynamic grid simulator with reverse feedback (1 MVA)
- UVRT and OVRT test unit for test specimens up to 10 MVA
- Anti-islanding test stand (400 kVA)
- Climatic chambers for large equipment (-30 °C to +80 °C)
- High-accuracy power measurement (1000 V / 5000 A)

Medium Voltage Lab

- Test field with medium-voltage connection (20 kV / 20 MVA)
- Medium-voltage DC source (40 kV / 660 kW)
- Medium-voltage resistor (20 kV / 1 MW)
- Medium-voltage transformer (3 to 30 kV / 2.5 MVA)
- Railway transformer (16.6 Hz / 15 kV / 200 kVA)
- Semiconductor test stands to characterize leakage currents (to 30 kV), avalanche effects (to 4 kV / 100 A) and switching losses (to 20 kV / 1000 A)

Smart Energy Lab / Digital Grid Lab

- Simulator for variable, electrical load profiles
- PV simulator for dynamic IV characteristics
- HIL system to model thermoelectric load profiles
- Test stand for battery management systems
- Grid-connected charging stations for electric vehicles
- IT-monitoring platforms for living laboratories and field tests