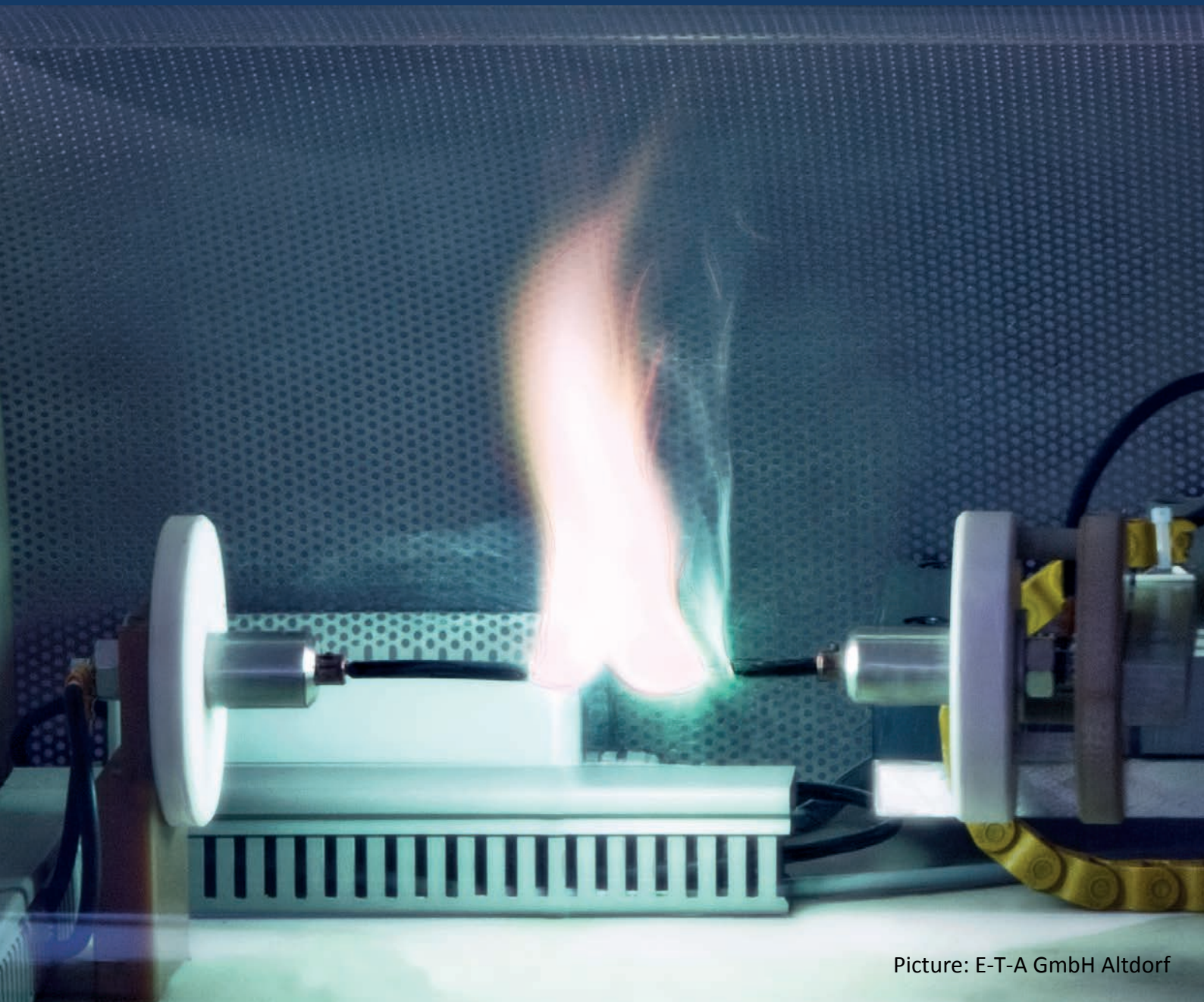


DC Microgrid Test Bench for Fault and Stability Analysis





DC Microgrid Test Bench

for Fault and Stability Analysis

Description

DC Microgrids that are solely fed through power electronics pose a particular challenge regarding the dimensioning of safety electronics. While the stationary fault current is limited through the control of the individual converters, transient error currents are mainly fed from capacitors for a very short time only.

The **DC Microgrid Test Bench** aims to provide a **flexible and secure platform** to emulate various DC microgrids in the laboratory. For this purpose, it contains a bidirectional DC/DC-converter with eight individual channels, each providing or consuming up to 8 kW. The configuration allows a wide range of typical applications, e.g. solar or battery converter as well as electronic loads. Impedances of cables are emulated with a modular air coil system.

The grid can be subjected to various **fault situations** (parallel, serial, arc) occurring at any point of the grid. Included in the test bench is a range of measuring electronics and safety devices.

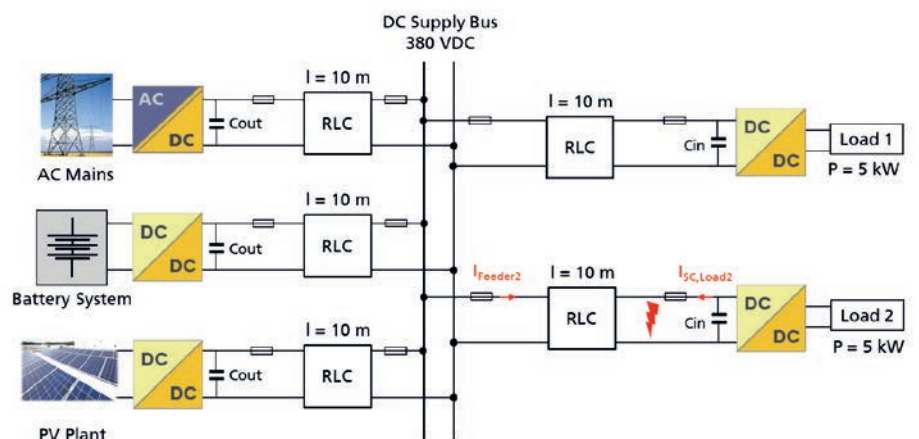
Technical Data

Maximum DUT voltage	Up to 900 V
Maximum fault current	8 kA
Default grid voltage	Up to 400 V
Default power source/sink	8x 8 kW
Default current measuring device	400 A, 2 MHz
Dimensions H x W x D	1943 mm x 1080 mm x 647 mm

Features

- Flexible configuration of a test DC microgrid in a safe environment
- Compact simulation of cabling within the grid
- Various fault situations – hard or soft errors, serial or parallel as well as arcs
- Wide range of DUT mounting and connection options
- Safety electronics in case of DUT failure to limit energy input
- Measuring equipment for grid voltages and currents up to MHz range
- Default power source/sink with eight channels and maximum total of 64 kW permanently installed
- Additional sinks and sources can be connected
- Future expansion to conduct tests of DC connectors

Example Configuration of a DC Microgrid for Fault Analysis



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