

POWER ELECTRONICS LABORATORY

Aim of the power electronics laboratory is mainly the testing of inverters used in PV systems, and evaluation of their suitability as DER equipment. The power electronics laboratory is equipped mainly with the following hardware:

- PV Array simulator: A PV array simulator is available, consisting of two programmable DC power sources. Currently the range of operation for voltage and current is 0-400V and 0-25A respectively.
- Programmable Loads: A programmable load bank consisting of ohmic and inductive loads, of a total consumption of 100 kVA is available. Smaller loads can also be connected, for the fine adjustments under testing.
- Grid simulator: A programmable AC power source rated at 12kVA is installed and used in order to simulate a low voltage power grid operation.
- Power-meter: A high quality power-meter for the measurement of power of DC and AC circuits is available, for the acquisition of efficiency curve of the inverter under test.
- Power quality meter: A power quality meter is available, for the measurement of electrical power quality of inverters, and the monitoring of inverter output during transient events.



Fig. 1 Programmable Grid simulator and load-bank control