

## Portable and wireless IV-curve tracer for >5 kV organic photovoltaic modules - DTU Orbit (09/11/2017)

### Portable and wireless IV-curve tracer for >5 kV organic photovoltaic modules

The practical design of a wirelessly controlled portable IV-curve tracer based on a capacitive load is described. The design is optimized for the measurement of solar cell modules presenting a high open circuit voltage of up to 6 kV and a low short circuit current below 100 mA. The portable IV-tracer allows for on-site/in-situ characterization of large modules under real operating conditions and enables fast detection of potential failure of anomalies in electrical behavior. Currently available electronic loads only handle voltages up to around 1 kV. To overcome cost and safety issues related to high voltage applications, the design is based on low cost components, battery-based isolated supply and wireless communication. A prototype has been implemented and field tested for characterization of different organic photovoltaic modules (OPV) made according to the infinity concept with a large number of serially connected single junctions (~7.450 single junctions) presenting open circuit voltages up to 5.6 kV.

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