

Humanity is facing an evergrowing crisis. The demand for energy is rising day by day and an end is not in sight. Scientists are researching all imaginable possibilities, even as we speak. A possible solution is solar energy, however before this technology can be commercially used it needs further testing, yet this proves difficult since solar light is needed to operate a solar panel, which is difficult to reproduce in a laboratory environment. To measure a solar panel and thus optimize it, a testing unit is needed, which is difficult to design due to the aforementioned problems. A solution to this is to simulate the output of a solar panel. This leads to the main objective, the development of a simulator, which emulates a real photovoltaic cell. This comes with the benefits of not needing sunlight in order to operate. Furthermore the possibility exists to simulate different operation modes of a solar panel such as “defect” or “dirty” without the need of damaging or soiling the solar cell. In addition it is possible to mimic a change on the intensity of the light which falls onto the solar panel. In summary a simulation is vastly superior when compared to a real photovoltaic panel in regards to testing a measurement unit for the mentioned panel since it is of no concern to the test person and the test results under which circumstances the simulator is operated.