

ABSTRACT

A measuring device (1) and a method for determining a spectral responsivity $SR(\lambda)$ (17) and a voltage-dependent current behavior $I(U)$ under standard solar conditions of a photovoltaic unit (3) are described. The measuring device comprises an illumination source (5), a contacting device (7), a controller (9) and an evaluation device (11). The illumination source may selectively emit light (13) with variable spectral distributions (15) or with a standardized solar spectrum. The controller may control the illumination source to emit the solar spectrum in a first operating mode and to successively emit light with a multiplicity N of different spectral distributions in a second operating mode. The evaluation device is configured to determine, in the first operating mode, from a measured PV current I_{meas} , the voltage-dependent current behavior $I(U)$ of the photovoltaic unit (3) under the action of the standardized solar spectrum, and to determine, in the second operating mode, from a plurality of currents $I_{\text{meas},n}$ ($n=1\dots N$) respectively measured upon illumination with the N different spectral distributions (15) and taking into account a spectral irradiance $E_{\lambda,n}(\lambda)$ ($n=1\dots N$) previously known for each of the N spectral distributions, the spectral responsivity $SR(\lambda)$ of the photovoltaic unit.

(FIG. 1)