

ABSTRACT

CHARACTERIZATION SOLAR PANEL MODEL SR-156P-100 UNDER THE SUN LIGHT INTENSITY

By

Nora Aditiyan

Performance solar panels can be seen from the curve-specific characteristics of solar panels that will use it. Characteristics of solar panel consists of current-voltage curve and power-voltage curves. In this study to obtain the characteristics of the solar panels is measured by the intensity of sunlight. Measurements in question is to see the magnitude of the voltage value and the value of current solar panel by varying the resistance value of the load.

The current-voltage curve shaped nonlinear. The greater the resistance load, the load voltage will be closer to the value of the open circuit voltage (V_{oc}) solar panels. Meanwhile, the smaller the resistance of the load, the current flowing into the load will be getting closer to the short circuit current (I_{sc}) solar panels. The voltage-power curve shaped nonlinear. Power solar panels will be maximum (P_m) if the load flow the maximum current (I_m) and has a maximum voltage (V_m).

Some of the factors that affect the working of solar panels, among others, long electric cable used to connect the solar panels to the load, the slope solar panels on the incident angle of sunlight and the weather is sunny or cloudy conditions.

Keywords: Characteristics of solar panels, current-voltage curve, voltage-power curve, maximum power.

ABSTRAK

KARAKTERISASI PANEL SURYA MODEL SR-156P-100 BERDASARKAN INTENSITAS CAHAYA MATAHARI

Oleh

Nora Aditiyan

Kinerja panel surya dapat dilihat dari kurva karakteristik panel surya yang akan digunakan tersebut. Karakteristik panel surya terdiri dari kurva arus-tegangan dan kurva daya-tegangan. Dalam penelitian ini untuk mendapatkan karakteristik panel surya dilakukan pengukuran berdasarkan intensitas cahaya matahari. Pengukuran yang dimaksud adalah melihat besarnya nilai tegangan dan besarnya nilai arus panel surya dengan memvariasikan nilai resistansi beban.

Kurva arus-tegangan berbentuk nonlinear. Semakin besar resistansi beban, maka tegangan beban akan semakin mendekati nilai tegangan hubung terbuka (V_{oc}) panel surya. Sedangkan semakin kecil resistansi beban, arus yang mengalir ke beban akan semakin mendekati arus hubung singkat (I_{sc}) panel surya. Kurva daya-tegangan berbentuk nonlinear. Daya panel surya akan maksimum (P_m) jika pada beban mengalir arus maksimum (I_m) dan memiliki tegangan maksimum (V_m).

Beberapa faktor yang mempengaruhi kerja panel surya antara lain panjang kabel listrik yang digunakan untuk menghubungkan panel surya dengan beban, kemiringan panel surya terhadap sudut datang cahaya matahari dan kondisi cuaca cerah atau mendung.

Kata Kunci : Karakteristik panel surya, kurva arus-tegangan, kurva daya-tegangan, daya maksimum.