

Solar module SUSE 4.34

Solar module 2.4 V 630 mA 1.2 W for PV experiments

Especially suited as solar filling station for the solar vehicles 1+4



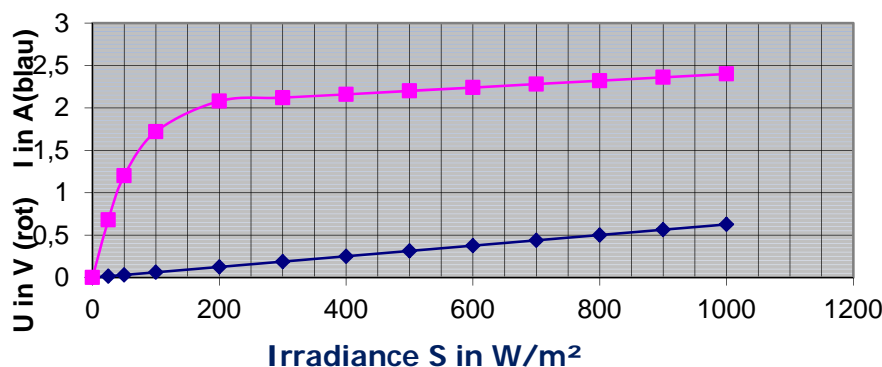
The solar module **SUSE 4.34** is a robust module with the solar module SUSEmod6 with 4 solar cells in intern series connection. The **module voltage is 2.48 V**, the **short-circuit current 630 mA**, the **power 1.2 W** with standard testing conditions (Irradiance 1000 W/m^2 , $T = 25^\circ\text{C}$, AM 1.5). The solar cells are mounted on a plexiglass base plate bent to 75° , on the short side there are 2 jacks positive (red) and negative (black) and an indicator LED, which signalizes the operational readiness, if the light is strong enough. This module is especially suited as a solar filling station for the solar vehicles SV1 and SV4 and for experiments with the solar storage module SUSE 4.12. Additionally experiments about solar radiation and photovoltaics can be conducted.

Left:

The solar module SUSE 4.34 in front view.
The 4 solar cells in intern series connection are visible.
The multimeter shows the module voltage in the sunlight with slightly clouded sky as $V = 2.42 \text{ V}$. On the back there are the 2 connection jacks and an indicator LED.

Characteristic curves $U(S)$ and $I(S)$ solar module 4.34

pink: open circuit voltage in V blue: short cut current in A



The x-axis is the light intensity = irradiance S of the light in W/m^2 . 0 is absolute darkness, 1000 is bright sunshine with deep blue sky in the summer half-year.

The **module voltage V_{oc}** (pink graph) first strongly increases from 0 on and then slowly approximates the value 2.48 V, mathematically it is an exponential function.

The **short-circuit current I_{sc}** increases in a linear fashion from 0 to its maximum value of 0.63 A = 630 mA. Because of the linear trend the irradiance of the light can easily be determined from the short-circuit current, this is done in experiments.