

innovative Solarsysteme für Schule und Ausbildung innovative solar- systems for school, college, technical education

- Solardidaktik
- Solarzellen
- Solarmodule
- Photovoltaik- Experimentiergeräte
- Photovoltaik- Gerätentwicklung
- Experimentieranleitungen didaktische Konzepte
- Solarberatung
- Solar- Workshops
- Solar- Fortbildung für Lehrkräfte
- solare Aus- und Weiterbildung
- Solarspielzeuge

- solardidactics
- solar cells
- solar modules
- photovoltaic -experiment devices
- solar- experiment- manuals
- solar- workshops
- solar consulting
- solar education
- solar training for teachers
- solar toys

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## 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/m², T = 25°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.

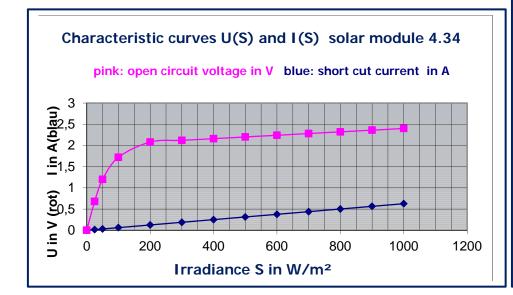
This module is especially suited as a solar filling station for the solar vehicles SV1 and SV4 and for experiments with the solar storage module SUSE 4.12. Additionally experiments about solar radiation and photovoltaics can be conducted.

## 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 V. On the back there are the 2 connection jacks and an indicator LED.



The x-axis is the light intensity = irradiance S of the light in W/m<sup>2</sup>. 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.