

# The solar module SUSE CM7MSB

## Powerful beginner's solar module 1.8 V / 630 mA

Especially suited for student-centered experimental classes in ISCED levels 1-2



### View from above onto the solar module SUSE CM7MSB

On the right-hand side of the roof-shaped plexiglass base plate the solar module with 3 solar cells in intern series connection is visible, on the left-hand side the solar motor with the (fast rotating) propeller, below the switch and the test jacks.



### View on the front side

With the switch between the test jacks the motor can be turned off for measurements on the solar module. If the red switch is switched pointing towards the red jack, the motor is turned on.

## The solar module SUSE CM7MSB

On the roof-shaped bent module base plate made of plexiglass (total dimensions 310 x 80 mm) in the front the solar electric motor with the blue propeller is visible, below the test jacks and the switch for the solar motor. On the other side of the "roof" of the plexiglass base plate the high-quality solar module with a voltage of 1.8 V, a short-circuit current of 630 mA, and an electric power of 864 mW is glued on. (All data with an irradiance of the sunlight of 1000 W/m<sup>2</sup>) **The solar module corresponds to a 1.5 V battery.**

The electric motor and the solar module are connected electrically via a switch, the motor can be turned off or on.

**The module is well suited for photovoltaics experiments in ISCED levels 1 (Elementary School) to 2 (Secondary School – with extended experiments).**

Basic experiments on photovoltaics and solar cells and modules can be conducted in student experiments. The solar module is very sensitive and works well even under a clouded sky. If the solar motor is turned off, experiments with the solar cells can be conducted independent from the motor, multimeters can be connected to the test jacks. Also multiple devices SUSE CM7MSB can be connected

in series. With 2 devices in series connection e.g. a 3 V radio (e.g. SUSE solar radio 4.36) or LEDs in all colors (SUSE 4.15) can be operated in the daylight.

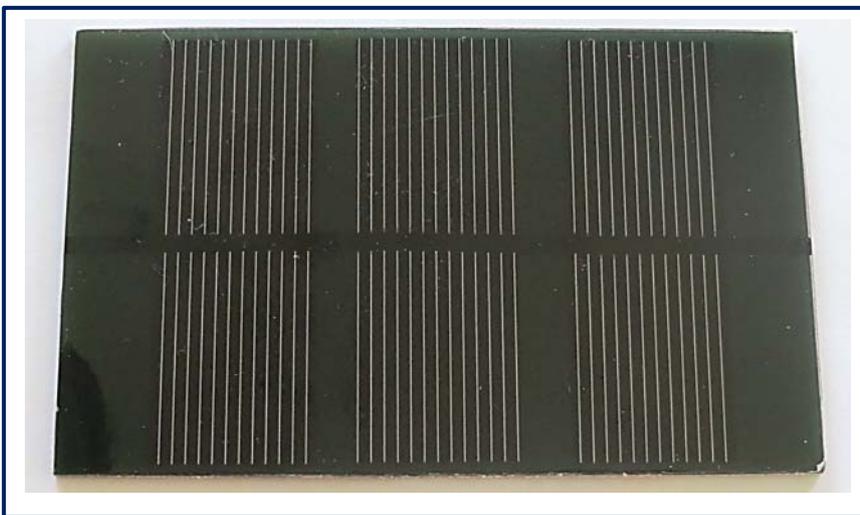
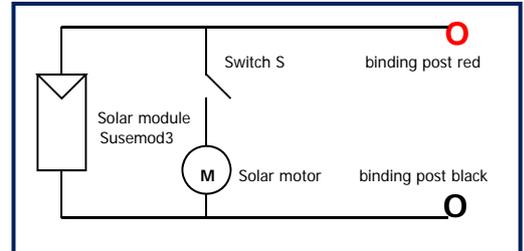
With one device a red glowing LED can be operated in the daylight (e.g. SUSE 4.15).

The device is available as finished product and as a construction kit. Also included in delivery is a detailed experimentation manual.

### The electric circuit of the solar module SUSE CM7MSB

The solar module SUSEmod3 consists of 3 solar cells, that are connected in series internally, with a solar irradiation of 1000 W/m<sup>2</sup> (bright sunshine with deep blue sky) the open circuit voltage is 1.8 V, the short-circuit current 630 mA.

The solar motor can be turned on or off with the switch S.



Under the laminated and grouted surface the 3 solar cells are visible, that each run from top to bottom.

The lines are the silver conductors of the front side contact grid.

The 3 solar cells are already connected in series internally, so that a total voltage of 1.8 V with a short-circuit current of 0.63 A results with an irradiation of 1000 W/m<sup>2</sup>.

The photo shows the **solar module SUSEMod3**, a very robust and laminated solar module grouted with transparent plastic, consisting of 3 solar cells in intern series connection with the dimensions 120 x 75 mm, splash-water-proof, therefor very well suited for the use on solar boats.

With a solar irradiation of  $S = 1000 \text{ W/m}^2$  the open circuit voltage is 1.8 V and the short-circuit current 0.63 A. Multiple modules can be connected in series, in doing so the voltage increases by 1.8 V each!

**The Module replaces a 1.5 V battery.**

If **2 solar modules SUSE CM7MSB are connected in series**, a total voltage of up to 3.6 V results, depending on the light intensity, with that the solar radio SUSE 4.36 can be operated outdoors in the daylight even under a clouded sky. Indoors the solar modules should be placed on an overhead projector or be illuminated by a halogen lamp.

The surface is covered by a protective sheet, that has to be removed before the first use.

