

The SUSE solar vehicle 3

Powerful solar vehicle with the solar module SUSEmod6 + GoldCap energy storage, drive by SUSE solar motor and 2-step gear + 3 test jacks for experimental measurements. With a manual for extensive experiments on photovoltaics.



The solar vehicle 3

On the upper surface there is the solar module SUSEmod6 (2.48 V / 630 mA), in front of it to the left the electric motor with the 2-step gear and the driven front axle are visible. On the side there are 3 test jacks and the switch (charge-off-drive). The GoldCap energy storage is located at the back below the solar module and is not visible in the picture.

The SUSE solar vehicle 3

Solar vehicles often disappoint with low solar radiation, with clouded sky or indoors they move just slowly or not at all. The solar vehicle 3 (Update of the solar vehicle 2) solves these problems. The solar module continuously charges the solar storage (GoldCap), even when the car stands still. With the stored energy of the solar storage the car then drives. This way the car even drives outdoors with heavy clouding, only the charging time before is longer as with bright sunshine. With the 3 test jacks on the side of the vehicle extensive, qualified measurements on the following topics can be conducted:

- **Photovoltaics experiments on solar modules, voltage, current, power with varying light irradiation**
- **Experiments on charging the GoldCap capacitor, voltage, current, power in dependence of time**
- **Experiments on discharging the GoldCap capacitor over the solar motor, discharge voltage in dependence of time, energy storage, measurement of the driving powers**

For these experiments an extensive experimentation manual is available, the use of this vehicle is reasonable for upper ISCED level 2 and ISCED level 3.

Depending on the solar radiation the charging process takes several minutes, the vehicle drives approx. 30-50 m with one charge. At the test jacks lab wires can be plugged in to conduct the experiments.

The construction kit (construction kit not suited for beginners) or the finished device are available at NILS-ISFH and SUNdidactics, with all mechanical and electric component parts and a detailed construction manual.

Technical data:

Vehicle length approx. 200 mm, vehicle width approx. 95 mm, solar module SUSEMod6: module dimensions 160 x 75 mm, contains 4 solar cells in intern series connection $V_{oc} = 2.48$ V, $I_{sc} = 630$ mA with an irradiance of $S = 1000$ W/m², $T = 25^{\circ}\text{C}$, AM 1.5