



SUNdidactics
SolarEnergyDidactics
SolarEducation
SolarEngineering
Photovoltaics + Solarthermal
innovative Solarsysteme für Schule und Ausbildung
innovative solar- systems for school, college, technical education

NILS ISFH
Kooperationspartner
cooperation partner
 Lernwerkstatt NILS-ISFH
 am Institut für Solarenergieforschung
 ISFH
 An- Institut der Leibniz Universität
 Hannover
Solartechnik
Solardidaktik
Solare Wissenschaft
Solar technology Solar didactics
Solar science

Photovoltaik-
System
SUSE
Solartechnik
Experimentiergeräte
Solare Experimente
von der Grundschule
bis zum Abitur
Solar technology
Experimentation devices
Solar experiments

BNE
Bildung
für
nachhaltige
Entwicklung
Education
for
Sustainable
Development

Solardidactic – Solarzellen – Solarmodule – PV- Experimentiergeräte – PV –Experimentieranleitungen – Solarthermie- Experimentiergeräte
 didaktische Konzepte – Solarberatung – Fortbildung – solare Aus- und Weiterbildung – Solarspielzeug
Solardidactics + solar cells + solar modules + photovoltaic experiment devices + solar toys + solar education and training

SUNdidactics Solar Systems

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Solar electric mobility

The solar speedster turboSC

QR solar speedster turboSC

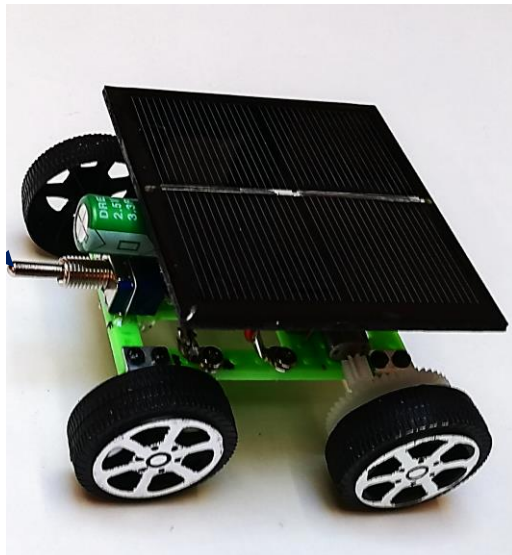


Beginner's solar vehicle with solar module and storage SuperCap

On the top side the solar module with 1,26 V/ 480 mA at $S = 1000 \text{ W/m}^2$ is located.

On the left-hand side there is the operating switch (left charge **C** – off – right drive **D**), above is the storage SuperCap 5F. On the bottom right the white cogwheels of the gear are visible, behind it the electric motor.

At the soldering eyelets, measurements can be conducted with a multimeter.



With a voltmeter, the module voltage, the short-circuit current, as well as the charging and discharging of the capacitor can be measured at the vehicle and measurement curves can be created. Here the measurement value of 1,20 V is shown during charging.

The solar vehicle SUSE solar speedster turboSC

On the chassis of the well established solar vehicle SUSE solar speedster, a solar module with 2 solar cells in integrated series connection ($V_{oc} = 1,26 \text{ V} / I_{sc} = 480 \text{ mA}$) is mounted on top of a spacer block. On the left-hand side the operating switch with the 3 positions: left- charge **C** **off** right drive **D** is visible.

Above the switch the storage capacitor ($C = 5 \text{ F} / V = 2,4 \text{ V}$) is located, it can store the energy amount of 4 J delivered by the solar module and use it for driving after switching over. For charging turn the switch to the left for 2 minutes, then switch over to the right, the car drives for about 30 - 50 m with this energy, even in poorly lit rooms.

The storage capacitor can be charged either outdoors in the sunshine/daylight or indoors with halogen or red light spot lamps (LED lamps are not usable due to the inapt light spectrum).

Technical Data:

Vehicle

Vehicle length: 85 mm
 Vehicle width: 65 mm
 Vehicle height: 43 mm

Drive

Mini electric motor
 with reduction gear

Solar module

Module dimensions 60 x 60 mm
 2 solar cells in internal series connection
 $V_{oc} = 1,26 \text{ V}$ $I_{sc} = 480 \text{ mA}$
 At standard testing conditions
 $S = 1000 \text{ W/m}^2, T = 25^\circ\text{C}, AM = 1,5$

Energy storage

Supercapacitor
 3,3 F / 2,4 V or
 5,0 F / 2,4 V

The vehicle is available for delivery as a construction kit or a ready-to-use device.

Required tools for the construction kit:

Cross tip screwdriver (included in construction kit), long-nosed pliers, side cutters, soldering station with lead free tin solder. For measurements, a multimeter with lab wires and alligator clips is required.