

**Photovoltaik-
System
SUSE**

**Solarthermiesystem
Wärme von der Sonne**

innovative Solarsysteme für Schule und Ausbildung



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Construction manual for the solar module SUSE CM330ST

Solar filling station for the solar vehicle SUSE solar runabout turboST



The technical manual:

Solar module SUSE CM330ST.

The device is supported by a plexiglass plate bent roof-shaped to 75° with the dimensions 160 x 80 mm. On the lower roof side both the measurement jacks, red (+) and black (-), for photovoltaic experiments, as well as the charging cable for the e-vehicle **SUSE solar runabout turboST** are visible.

On the upper roof side, the solar module SUSEmod8 (1,26V / 480mA) is located.

In the version SUSE CM330, the charging cable is omitted.

The components:

- 1 plexiglass support, drilled with 5 holes, 160 x 80 mm
- 2 measurement jacks, 1x red, 1x black, with 2 soldering eyelets
- 1 type plate sticker
- 1 solar module SUSEmod8 with rear-facing adhesive tape and double red/black hookup wire
- 1 charging cable with phone jack and cable end
- 1 construction manual + experimentation manual

The construction manual:

With competent guidance, the following 6 work steps have to be executed.

The finished sample module and the photos can be used for illustration.

Necessary tools: long-nosed pliers, side cutters, tweezers, wrench socket 8 or spanner 8, soldering station with tin solder, NILS plexiglass bending device with bending template 75°, and power supply 14V / 6,5A.

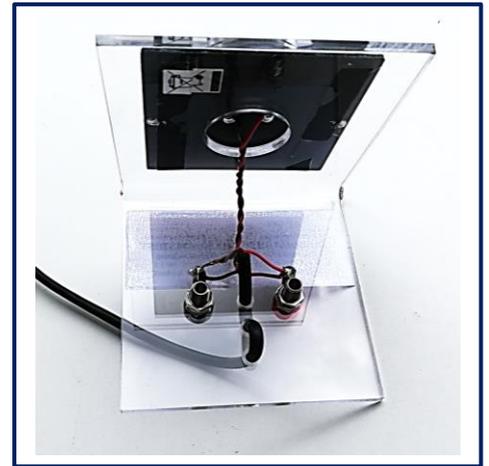
1. **Bending:** Remove protective foil on both sides and bend the plexiglass plate (with built-in motor!) roof-shaped to 75° at the marked positions (marked on the lateral edges!) with the NILS-ISFH bending device, hold the plexiglass plate on the angle template until the bending line is cooled down. **The bent plexiglass support**
2. **Installation of the type plate (sticker):** Remove the foil from the type plate's back side and attach the sticker exactly above the jack holes. **Front side with jacks and type plate**
3. **Assembly of the two jacks:** Remove one nut completely from the jack, tighten the 2nd nut to the colored head by hand, then insert the jack from the front, red on the left-hand side, black on the right-hand side. On the



inside, put on the soldering eyelet and fasten it with the first nut, first by hand, then with the spanner 8 or wrench socket 8. Slightly bend the soldering eyelets upwards, they should point up towards the lower edge of the type plate.

4. **Assembly of the solar module SUSEmod8:**

Remove the red protective stripes from the back side of the adhesive tape and place the module on the plexiglass support, so that there is 1 cm space left on the sides and at the bottom respectively. Then attach the module and press it on tightly. The 2 hookup wires are led to the inside through the big hole. Afterwards the wires are led upwards to the kink, bent to 75°, then led further to the soldering eyelets. The blank end of the red wire is hooked into the soldering eyelet of the red jack, the blank end of the black wire into the soldering eyelet of the black jack.



The inside view
At the top the attached solar module is visible, at the bottom the two soldering eyelets with the wires of the solar module and the charging cable soldered onto them.

5. **Assembly of the charging cable for SUSE CM330ST** **- omitted in SUSE CM330**

The cable end of the charging cable is put through the lowermost hole from the outside for 8 cm, afterwards it is led outside again through the 2nd hole and inside again through the 3rd hole, see photo!

The red line of the charging cable is **positive** and soldered to the soldering eyelet of the red jack together with the red wire from the solar module. The silver-black line of the charging cable is **negative** and soldered to the soldering eyelet of the black jack together with the black wire from the solar module, see photo!

Now the solar module SUSE CM330ST is completed.

6. **Function tests**

To test the function, a multimeter with 2 measurement wires is necessary.

6.1 **Voltage measurement at the jacks (SUSE CM330 and SUSE CM330ST):**

The wires are plugged into the red-black jack pair, the measurement range 20V DC is selected. Outdoors the module is adjusted towards the sun or under a clouded sky southbound, in bright sunshine the voltage should be ca. 1,26 V, with a clouded sky a little less. Indoors the measurements can take place 40 cm in front of a halogen spot lamp or a red light lamp, the measured values should be similar.

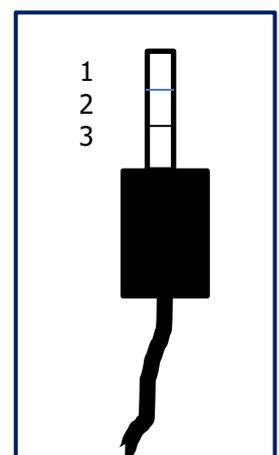
6.2 **Voltage measurement at the charging cable (only for SUSE CM330ST!):**

The charging cable has 3 contacts, the front (1) is positive, the center (2) is blank, the back (3) is negative.

The multimeter is connected to 1 and 3, the same values as in 6.1 have to be measured.

Now the device is operational as a solar module or solar filling station. Have fun and success with the experiments!

For experiments on photovoltaics with SUSE CM330/330ST, there is an extensive experimentation manual.



The plug of the charging cable