



## Sunovation`s solar inlays, just perfect.

As you know the genius of aesthetics until now have been distinct from the use of solar technology in yachting. The successful combination of design and functionality has been a particular passion of ours for some time. We have been looking for solutions, to aesthetically and functionally integrate photovoltaics into a boat. All the same we wanted not only to replace it with something lasting, but also to search for additional applications. We did it! The result of this development is a family of solar module products, i.e. systems which can all be integrated into skylights, loft windows and emergency escape hatches. The top side of these modules is made of scratch-resistant Makrolon. Depending on the application Sunways Power cells, Sunways Plus cells, or ASE mono-cells are used. A further innovation of these modules is the integration of bypass diodes into the surface of the module's cells. This solution means no tiresome junction box is needed (good for us and everyone else). Through the collaborating of the company Adapt and the Fraunhofer IPA, a connecting system was developed for the automotive industry, which best fulfils our challenge with regard to form and function. Hence all the modules in this family of products use this Power-Flex system. Last but not least we included a so-called MPPT charge regulator in our modules. This regulator allows the module to always deliver the optimum current and voltage onboard, even when the module is occasionally partially shaded or when the weather is sometimes not so good.

As already mentioned above, this solar module not only supercedes other solar modules, but also integrates more functions into a module. So LEDs for example can be mounted into the edge of the module's top surface and thus provide illumination of gangplanks on deck at night. Even so active ventilation systems can be built into the hatches. The fans are controlled by a similarly integrated air quality sensor. Thus the result is particularly good, if the hatch is mounted over the galley. On the subject of air quality, dangerous gas or smoke can naturally be eliminated with solar-generated energy. The module generation ranges from 16Wp to approx. 350Wp depending on the cell type and the size of the hatch. As usual the Sunovation solar modules carry no premium for different colours.

The high-grade plastic -sheets out of Makrolon are UV and scratch resistant, further they stand chemicals and any weather situation. Makrolon is the high-tech plastic of Bayer, which, because of its high transparency and ease to work with, is used in many areas of daily life, like sport glasses and car headlights for example.

## Why you should equip your hatch with solar modules from Sunovation!

### Choose...

- permanent readiness of your electrical consumers
- no diesel smell
- no disturbing noise, during anchoring and in the harbor
- no stumbling because of loose cables
- no plug off of the batterie for weekend sailors necessary
- no steeling of the solar modules possible

... **Choose comfort and function-integrated solutions.**

### Choose...

- high transparency
- unbreakability
- scratch resistant surfaces because of silicat topings
- UV-resistance
- resistance against weather and chemicals
- seawater resistance
- high temperature resistance
- good workability

... **choose Makrolon, the high-tech plastic from Bayer.**

### Choose...

- Power-Flex connecting systems. A flexible connecting system for high currency.
- MPP/DC-DC-charge regulators. Standard modules break down, if they are partly shaded, because in this case the produced voltage does not match the requested voltage of the accu. The DC/DC converter, which is integrated in the MPP-charge regulator, produces a batterie compatible voltage, which allows a permanent energy supply. (Additional power: 30%).
- integrated Bypass-Diods. There does not have to be an unaesthetical socket on the module, because of the integrated bypass-diods.

... **choose competence .**

### Choose...

- colored tint (blue, green, bronze)
- customer specific dimensioning. The wight of the inlay is about 5kg each 500x500mm.
- Celltype. There are inlays from - 16Wp upto 350Wp  
- for 12V or 24V systemes available.

... **choose individuality.**

### Choose safety...

- Productguaranty concerning material and production errors: 2 years
- Outputguaranty (80%): 10 years

... **choose the future.**

**Replace your current inlay with a solar inlay from Sunovation or get the complete hatch from GEBO, NEMO or NEWMAR for example!**

**Product example**

**LK-510-G-27-X**

The module has 36 polycrystalline cells 100x50mm (Type: Sunways plus). It produces 27Wp under STC (Standard Test Conditions) or an average of **110Wh/d\***. It is used in 12V systems. Hatch: GEBO 500x500. Electrical Data/module: U=18V, I=1,5A, P=27Wp

\* Wh/d: Watthours per day = Average gain in hours per day under STC (Standard Test Conditions) in Germany.

**Typical power requirements of some electrical consumers**

Machine	Power	Periode	Needed Energy
Radio	5W	5h	20Wh/d
Light	10W	4h	40Wh/d
TV	40W	3h	120Wh/d

**FAX-RESPONSE**

To Sunovation GmbH  
Telefax +49 (9372)949110



**Solar modules made of transparent plastics. Please mark with a cross.**

- Please send me more information.
- Please send me the Sunovatio CD.
- Please call me.
- Please keep me up to date regularly. Mail the Sunovation newsletter to the following e-mail adress: \_\_\_\_\_.
- I would like to get a Sunovation sample, please contact me.
- Please visit me on \_\_\_\_\_ at \_\_\_\_\_ o'clock.

\_\_\_\_\_  
Name/Focal point

\_\_\_\_\_  
Office/Company

\_\_\_\_\_  
Street/Number

\_\_\_\_\_  
Postal code/Town

\_\_\_\_\_  
Telephone

This information is free and without obligation.