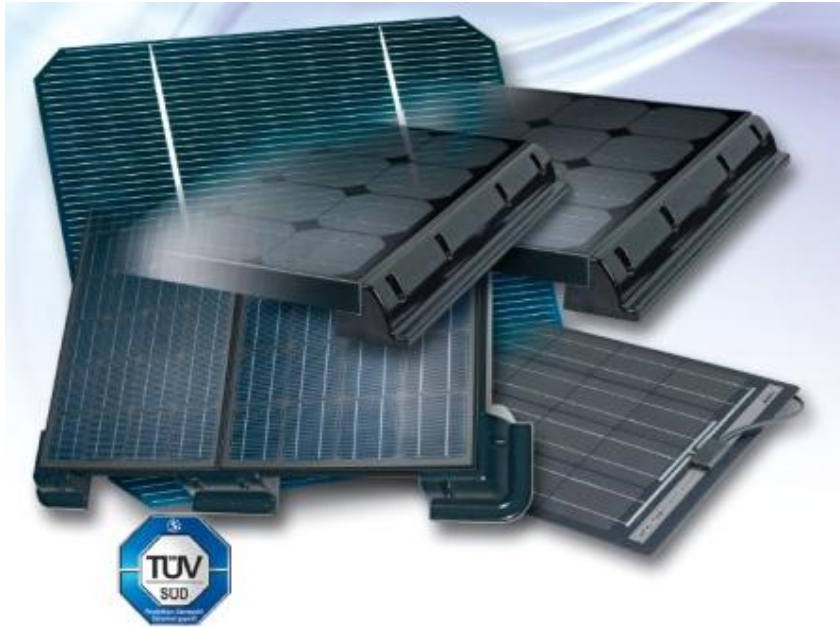


# An Introduction to M-Power Mobile Solartechnologie Solar Panels



## Advanced Solar Technology

By using techniques and technologies proven for industrial and aerospace users, M-Power Solartechnologie offers the quality and performance that until now was only reserved for high end applications. Manufactured by our German Technology partner, M-Power Solartechnologie panels are designed and built by a team with over 17 years of experience within ISO9001 Quality Certified production facilities.

## System Approach

A solar panel is only as effective as its mounting, regulation and overall installation. M-Power Solartechnologie isn't just a range of solar panels, it's a carefully designed package to provide optimal performance and superb reliability. M-Power Solartechnologie Panels are available in three ranges:

### Mono-Crystalline

Mono-Crystalline panels provide the best power to area ratio available. They are ideal for specialist vehicles which need serious amounts of power in good light conditions. Mono-Crystalline panels are non-flexible and impact resistant (but not designed to be walked on).

### CIS Panels

CIS (Copper-Indium Selenide) panels provide high efficiency in low light conditions. Ideal for vehicle owners who want to maximise solar panel output at higher latitudes and in the winter. CIS panels are non-flexible.

### Flexible Panels

Ideal for directly bonding to roofs. They can be walked on and bend to the contour of the mounting surface. They are ideal for where the solar panel installation needs to be discreet, yet provide good power output thanks to their poly-crystalline design.

### Regulators

M-Power Solartechnologie Regulators are available in two versions: **Standard Series-** These are basic regulators that connect and disconnect the solar panel as appropriate to prevent the batteries being overcharged. Optional remote monitoring and battery temperature sensors are available. All M-Power Solartechnologie panels require a regulator.

**Maximum Power Point Series (MPP)-** MPP regulators work in a different way to the standard series. Instead of directly connecting the panel to the batteries (which pulls down the output voltage of the panel to a less-efficient point), they allow the panel to develop the maximum amount of power for the given amount of sunlight. The regulator then applies power to the batteries in the most efficient way, providing around 30% more power to your batteries.

For installations where solar panels are used to keep batteries topped up (for example a stored vehicle), standard regulators provide a cost effective regulator solution. MPP regulators are best for users who need to maximise charging at all times or want their solar panel to "keep up" with on-board loads.



## **Sizing Your M-Power Solartechnologie Panel**

**Standby Charging:** To keep batteries in good condition while a vehicle is not in use, we recommend sizing the solar panel up to 20% of your battery bank. This would recharge a flat battery in around 3 days, or keep them topped up. The bracketed figure shows the approx. max output (in amps) of the panel in peak light, summer conditions:

|                 |         |
|-----------------|---------|
| 150Ah-30Watts   | (2.5A)  |
| 250Ah-50Watts   | (4.1A)  |
| 350Ah-70Watts   | (5.8A)  |
| 450Ah-90Watts   | (7.5A)  |
| 550Ah-110Watts  | (9.1A)  |
| 800Ah-160Watts  | (13.3A) |
| 1000Ah-200Watts | (16.6A) |

For keeping up with loads (like fridges and electronics), the output power of the solar panel is a more important consideration. Each panel's output is rated in watts- bear in mind that the power available is only during good sunlight hours, so keep up (without any other charging loads), you need to take into account night hours also. For this type of application, we recommend opting for MPP regulation.

## **Shading**

A regular question asked about the solar panels is their ability to cope with semi-shade conditions. All M-

Power Solartechnologie panels are designed to operate in semi-shaded conditions (The CIS range being the best suited for poor light conditions).

## **24V Systems**

M-Power Solartechnologie provides for 24V installations. Two (identical) panels are required, wired in series. Both our standard and MPP regulators have 24V variants available.

## **Mounting Options**

M-Power Solartechnologie panels are designed to be mounted without damage. No screws or bolts are needed to preserve your roof- just one hole (for cable) is needed!

Each style of mount (spoiler, frame or direct) uses a Sikaflex developed adhesive sticking system. This provides a lifetime, strong mounting and prevents damage, it's also removable if you decide to sell. The mounting process has been carefully engineered and tested to last the lifetime of your panel. This process has been independently tested and approved by TÜV- the German Automotive Safety Testing organisation. Wind tunnel testing and careful quality control ensures that panel mountings are good for wind speeds of up to 225km/h (140mph)

## **Spoiler Mount**

Spoiler Mounting is designed for motorhome roofs. Two spoilers are required per panel (one each end) and the system is designed to that the

spoilers mount perpendicular to the wind direction. Spoilers are UV stabilised polycarbonate and must be adhered to the mounting surface using our M-Power Solartechnologie approved adhesive kit.

## **Frame Mount**

Frame mounting allows M-Power Solartechnologie panels to be placed on any flat surface or gantry. Frame mounting is ideal for boat and static applications- note that it is not approved for roof vehicle mounting (use Spoiler mountings instead). Corner, Straight and Centre frame mountings are available so you can build up multiple panels in any configuration. Frame mounts require no screws or bolts preventing deck or damage.

## **Direct Mount**

Our flexible panels are designed to be directly bonded to a deck or roof using the same adhesive kit used with the frame/spoiler mount.

