

**Performance • Reliability**  
**220W/60-156p/2**

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**Cost Effective:** Optimum Price-Performance Balance

***Made in Germany***

Built to German automotive industry's highest quality standards

Guaranteed high energy yields – high efficiency cells, max power tolerance of 2,5% and optimum edge distances

Durable and reliable – 25-years performance warranty\*

\* under special conditions of asola GmbH

**Reliable Construction:**

State of the art, crystalline high efficiency cells 156 mm

Encapsulation materials – made by world wide market leader

Metallic junction boxes for highest security and excellent cooling of by-pass diodes

Best of class cables and plug system

50 mm aluminum frame for mechanical load of 5.400 Pa  
acc. IEC 61215 / UL 1703

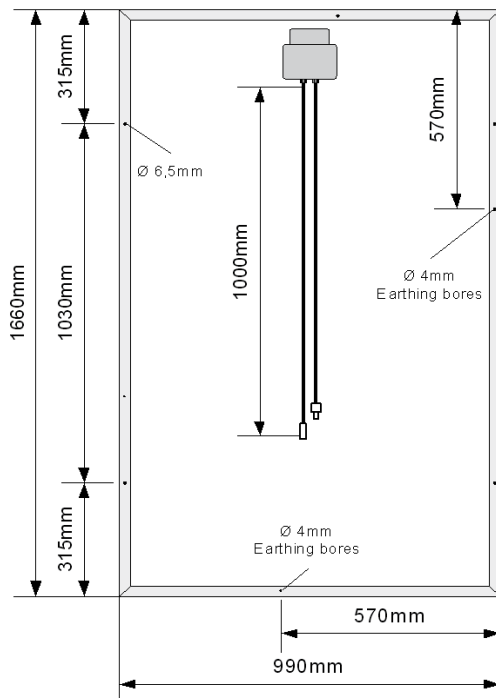
**Quality Beyond Industry Standards**

We exceed industry test standards by a factor of 2 to 3.

Available from your specialist dealer:

## Technical data\*

# 220 W/60-156 p/2



## Module technology

|   |
|---|
| Glass foil laminate with 60 poly crystalline<br><b>high efficiency solar cells "6"+</b>       |
| weight 23 kg  |
| Low iron, <b>tempered, safety solar glass</b>   |
| Encapsulation with UV stable, super transparent<br>ethylene vinyl acetate                     |
| <b>Certified Junction box: asola AL</b>   |
| <b>Cable/ plug: MC4 4 mm<sup>2</sup></b> , alternative offers on request                      |
| Special anodized aluminum frame, 50 mm<br>screwed for max. <b>Mechanical load 5400 Pascal</b> |
| <b>Certified according to DIN IEC 61215 and IEC 61730</b>                                     |

| Output class ** (W)                | 220              | 225              | 230              |
|------------------------------------|------------------|------------------|------------------|
| Open-circuit voltage $U_{OC}$ (V)  | 36,77            | 36,90            | 37,11            |
| Rated voltage $U_{MPP}$ (V)        | 30,00            | 30,00            | 30,00            |
| Short-circuit current $I_{SC}$ (A) | 7,85             | 8,05             | 8,08             |
| Rated current $I_{MPP}$ (A)        | 7,37             | 7,57             | 7,75             |
| tolerances                         | + 5 W<br>+ 2,3 % | + 5 W<br>+ 2,2 % | + 5 W<br>+ 2,2 % |

### Partial load at 300w/m<sup>2</sup>

|                                    |       |       |       |
|------------------------------------|-------|-------|-------|
| Open-circuit voltage $U_{OC}$ (V)  | 34,54 | 34,67 | 34,87 |
| Rated voltage $U_{MPP}$ (V)        | 29,43 | 29,43 | 29,43 |
| Short-circuit current $I_{SC}$ (A) | 2,36  | 2,41  | 2,43  |
| Rated current $I_{MPP}$ (A)        | 2,21  | 2,27  | 2,32  |

### Temperature coefficients

|                           |                              |                               |
|---------------------------|------------------------------|-------------------------------|
| $P_M = -0,43 \text{ %/K}$ | $V_{OC} = -0,33 \text{ %/K}$ | $I_{SC} = +0,054 \text{ %/K}$ |
|---------------------------|------------------------------|-------------------------------|

\* Typical data

\*\*The calibration laboratories are securing an absolute accuracy of  $\pm 2 \text{ %}$  for asola's calibration modules