



- PV Module Preliminary Specifications
- PV Module Final Specifications

## Standard Series: PM220P04 (Tested and certified by the TÜV Rheinland)

### 1. PV Module Characteristics

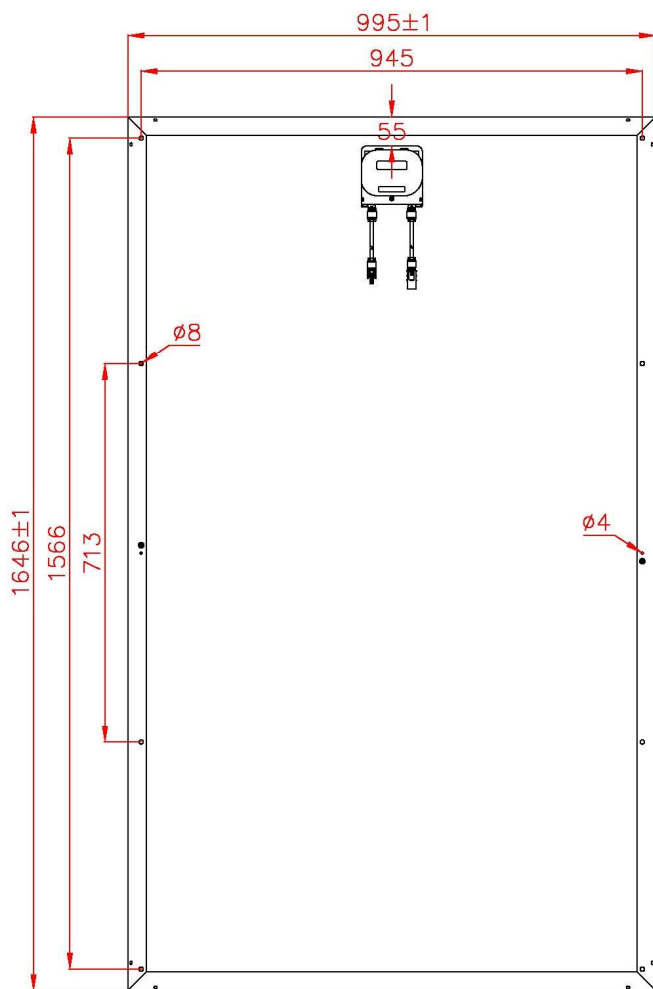
Specification	PM220P04			
Typ. Nominal Power $P_N$ @STC*	220Wp	225Wp	230Wp	235Wp
Typ. Module Efficiency	13.46%	13.74%	14.04%	14.35%
Typ. Nominal Voltage $V_N$ (V) @STC*	30.12	30.36	30.48	30.6
Typ. Nominal Current $I_N$ (A) @STC*	7.30	7.41	7.55	7.68
Typ. Open Circuit $V_{oc}$ (V) @STC*	36.06	36.42	36.60	36.72
Typ. Short Circuit $I_{sc}$ (A) @STC*	7.95	8.10	8.17	8.23
Maximum Tolerance of $P_N$ **	0 / +3%			
NOCT***	44.9±2°C			
Typ. Temperature Coefficient of $P_N$	-0.50 %/K			
Typ. Temperature Coefficient of $V_{oc}$	-0.125 V/K			
Typ. Temperature Coefficient of $I_{sc}$	4.5 mA/K			
Maximum System Voltage	1000V			
IP Protection Level	IP 65			
Serial Fuse Rating	15A			
Module Technology	Glass-foil-laminate with aluminum frame			
Module Design	3.2mm high transmission, low iron tempered glass Embedding: EVA Backside Foil : White Frame: Silver			
No. and Type Solar Cells	60 polycrystalline solar cells, 156mm x 156mm (6 inch)			
Cables	Junction box with TYCO Plug connector cables, 1x4 mm <sup>2</sup> , Length : each 1.0m			
Bypass-Diodes	3			
Dimensions (L x W x H)	1646 x 995 x 50 mm ( 64.80 x 39.17 x 1.97 inch)			
Weight	20.0 Kg			
Operating Temperature	-40~80			
Ambient Temperature Range	-40~45			
Qualifications	IEC61215 / IEC61730			

\* STC: Standard Test Conditions, measurement conditions: Radiation strength 1000 W/m<sup>2</sup>, spectral distribution AM 1.5, temperature 25 ± 2°C, in accordance with EN 60904-3

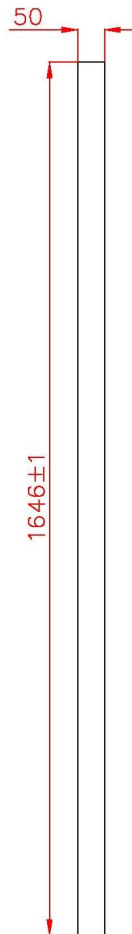
\*\* The given electrical data are nominal values which account for basic measurements and manufacturing tolerances of ±10%, with the exception of  $P_N$ . The classification is performed according to  $P_N$

\*\*\* NOCT: Normal Operation Cell Temperature, Measuring conditions: irradiance 800 W/m<sup>2</sup>, AM 1,5, Air temperature 20°C, wind speed 1m/s

## 2. Mechanical Characteristics



**BACK SIDE**



**CROSS SECTION**

Dimension unit: mm