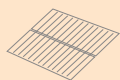


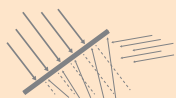
0322.1599 High performance module

M450-HC96-b BF U30 ZRM+

Bifacial glass-glass module / Full Black /
450 Wp / Mono HiR half-cut / 30 mm U-frame /
Hail protection class 5 / ZRM+ surface



n-type HiR half-cut technology



Additional yields through enhanced bifaciality factor



High performance stability and maximum efficiency



Meets highest aesthetic requirements



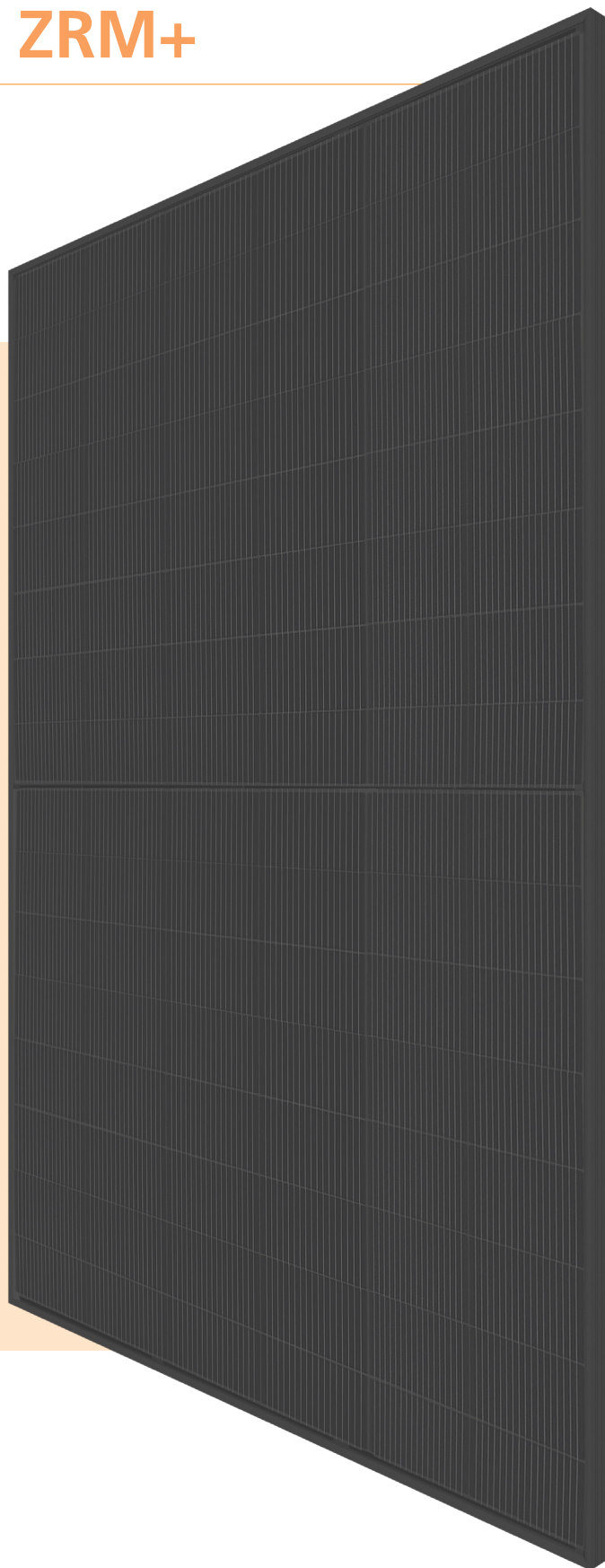
Very high durability due to glass-glass technology



Full traceability of all raw materials



Swiss development and warranty (30 years)



Bifacial gain¹

Low reflecting surface	<i>e.g. grass, brick</i>	5 - 15 %
Well reflecting surface	<i>e.g. sand, bright gravel or paint</i>	15 - 25 %
Highly reflecting surface	<i>e.g. ice, snow</i>	25 - 35 %

Electrical data STC

Nominal power (P _{mpp})	450 Wp	5 %	472 Wp
Nominal voltage (U _{mpp})	30.09 V	10 %	495 Wp
Nominal current (I _{mpp})	14.97 A	15 %	517 Wp
Open circuit voltage (U _{oc})	35.20 V	20 %	540 Wp
Short circuit current (I _{sc})	16.04 A	30 %	585 Wp
Bifaciality factor	≥ 90 %	* Depending on installation situation, albedo of the substrate and external factors.	
Module efficiency	22.54 %		
Power sorting	-0/+5 %		

STC (Standard Test Conditions): irradiance 1000 W/m², cell temperature 25°C, AM 1.5
Measuring tolerances ± 3 % (P_{mpp}); ± 10 % (U_{mpp}, I_{mpp}, %, U_{oc}, I_{sc})

Thermal properties

Nominal operating cell temperature (NOCT)	42 ± 2 °C
Temperature coefficient U _{oc}	-0.260 %/°C
Temperature coefficient I _{sc}	+0.046 %/°C
Temperature coefficient P _{mpp}	-0.320 %/°C

Operating conditions

Temperature range	-40 ... +85 °C
Max. system voltage	1500 V
Max. string fuse	30 A
Max. surface load *	Up to 6'000 N/m ²
Hail resistance	Ø 50 mm (30.8 m/s) Hail protection class 5
Application class (acc. to IEC/EN61730)	A
Fire protection class (acc. to EN13501-1)	B - s1, d0
Protection class	II
Standards	IEC/EN 61215, 61730
Salt spray test	IEC/EN 61701 I+II
Ammonium corrosion test	IEC/EN 62716

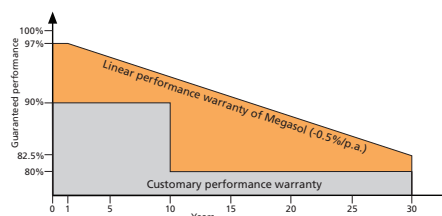
* Max. possible forces acting on the module. The maximum values in the installed state depend on the type of installation, installation situation, location and type of load. Specific details can be found in the respective planning information.

General data

Laminate structure	Glass-glass
Cell technology	Megasol Mono HiR Bifacial
Cell format	G10 Half-cut 182x105mm
Number of cells (matrix)	96 (6x 16)
Colour	Full Black Black cell spacing, black cross connectors
Frame	U-frame 30 mm Aluminium, anodized black
Front side	3.2 mm TVG High-transmission solar glass, antireflective very low-glare matt surface ZRM+
Encapsulation material	Special EVA (UV+/IR+) with lowest water vapour permeability
Back side	2.0 mm TVG
Junction box	Split Box, IP 68
Cable cross section	4 mm ²
Connectors	Original Stäubli MC4-Evo 2
Dimensions (LxWxH) ±3.0 mm	1762x1134x30 mm
Modular dimensions (LxW)	Depending on the installation situation
Weight	30 kg

Quality and warranty

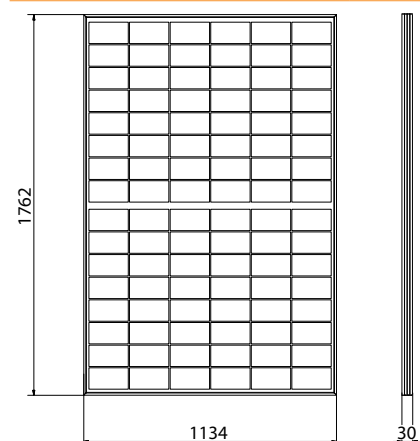
Quality characteristics	PID-free (no potential induced degradation) Yield-optimized low-light performance Full traceability of all raw materials HiR cell technology with enhanced bifaciality factor: additional yields when mounted on flat roof, railing, carport, etc. (depending on mounting distance and albedo of the substrate)
Product warranty *	30 years
Linear performance warranty	30 years



Relative efficiency level in relation to the minimal output (%). At least 97 % of the minimum output during the first year. Afterwards, max. 0.5 % degradation per annum. At least 92.5 % of the minimum output after 10 years. At least 87.5 % of the minimum output after 20 years. At least 82.5 % of the minimum output after 30 years. All data within the measuring tolerances. Warranties according to the respective latest Megasol Warranty Conditions which can be found on www.megasol.ch/warranty.

* Product warranty 15 years + 15 years with product registration.

Technical drawing



Note: The instructions in the installation manual must be strictly complied with. Further information about approved utilization of products can be found in the installation manual or can be requested from the technical service.



E-mail: info@megasol.ch
Hotline: +41 62 919 90 90
www.megasol.ch



Megasol partner