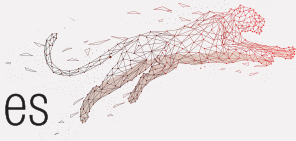


MONO CRYSTALLINE HALF-CUT BIFACIAL MODULE

645 / 650 / 655 / 660 / 665 Watts

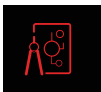
Panther Series



Overview

Ground breaking technology: higher power output, improved system performance - the ideal solution for end users who want a fast turnaround on their investments. A fully certified premium quality and high efficiency module made with A Grade materials.

Key Benefits



Certified by Independent Engineering Bodies



Higher Light Conversion



Ultra High Power Output



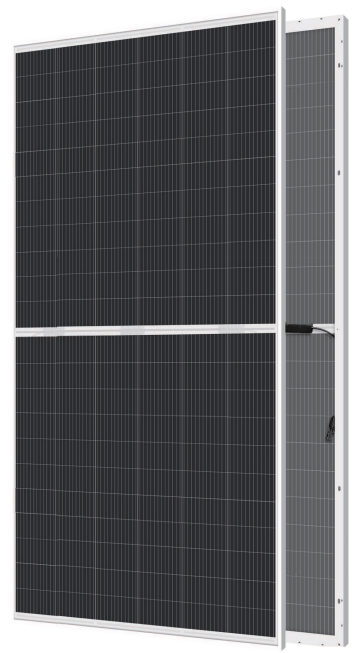
25 Years Limited Product Warranty



Low Resistive Losses



Low LCOE



Guaranteed mechanical resistance to severe weather conditions



Positive Tolerance

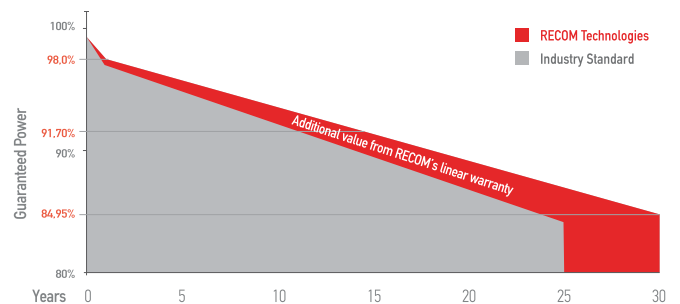


100 % electro-luminescence tested

Tests, Certifications and Warranties

Standard Tests	IEC 61215, IEC 61730
Factory Quality Tests	ISO 9001: 2015, ISO 14001: 2015
Certifications	Conformity to CE, PV CYCLE Fire safety Class C according to UL790
Insurance	Third party liability insurance provided by Liberty Mutual
Wind and Snow Loads Testing	Module certified to withstand extreme wind (2400 Pascal) and snow loads (5400 Pascal)
Power Tolerance	Guaranteed +0/+5W (STC condition)
Warranties	<ul style="list-style-type: none"> • 25-year limited product warranty • 15-year manufacturer warranty on 91.70% of the nominal performance • 30-year transferable linear power output warranty

Linear Performance Warranty



First Year Output | $\geq 98\%$ 2-30 Year Decline | $\leq 0.45\%$ 30 Year Output | $\geq 84.95\%$

Panther

MONO CRYSTALLINE HALF-CUT BIFACIAL MODULE

RCM-xxx-8BMM (xxx=645-665)

Electrical Characteristics

POWER CLASS ⁽¹⁾			645		650		655		660		665	
Testing Condition			STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum Power	P _{max}	[Wp]	645	488	650	491	655	495	660	499	665	503
Maximum Power Voltage	V _{mp}	[V]	37,41	34,68	37,61	34,86	37,81	35,05	38,01	35,24	38,21	35,42
Maximum Power Current	I _{mp}	[A]	17,24	14,06	17,28	14,09	17,32	14,13	17,36	14,16	17,40	14,19
Open Circuit Voltage	V _{oc}	[V]	45,38	42,11	45,58	42,30	45,78	42,48	45,98	42,67	46,18	42,86
Short Circuit Current	I _{sc}	[A]	18,11	14,85	18,16	14,89	18,21	14,93	18,26	14,97	18,31	15,01
Module Efficiency	Eff	[%]	20,76		20,92		21,09		21,25		21,41	
Maximum Series Fuse	I _R	[A]	30									
Maximum System Voltage	V _{sys}	[V]	1500 V DC									

(1) Measurement Tolerances: P_{max} (± 3%), I_{sc} & V_{oc} (± 3%) - Power Classification 0/+5W

(2) STC (Standard Testing Condition): Irradiance 1000W/m², Cell Temperature 25°C, AM 1.5

(3) NMOT (Nominal Operating Module Temperature): Irradiance 800W/m², NMOT, Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s

Bi Facial Output (4)

POWER CLASS			645		650		655		660		665	
			P _{max} [Wp]	Eff [%]	P _{max} [Wp]	Eff [%]	P _{max} [Wp]	Eff [%]	P _{max} [Wp]	Eff [%]	P _{max} [Wp]	Eff [%]
Power with Backside Gain	+5	[%]	677,3	21,8%	682,5	22,0%	687,8	22,1%	693,0	22,3%	698,3	22,5%
	+10	[%]	709,5	22,8%	715,0	23,0%	720,5	23,2%	726,0	23,4%	731,5	23,5%
	+15	[%]	741,8	23,9%	747,5	24,1%	753,3	24,2%	759,0	24,4%	764,8	24,6%
	+20	[%]	774,0	24,9%	780,0	25,1%	786,0	25,3%	792,0	25,5%	798,0	25,7%
	+25	[%]	806,3	26,0%	812,5	26,2%	818,8	26,4%	825,0	26,6%	831,3	26,8%
	+30	[%]	838,5	27,0%	845,0	27,2%	851,5	27,4%	858,0	27,6%	864,5	27,8%

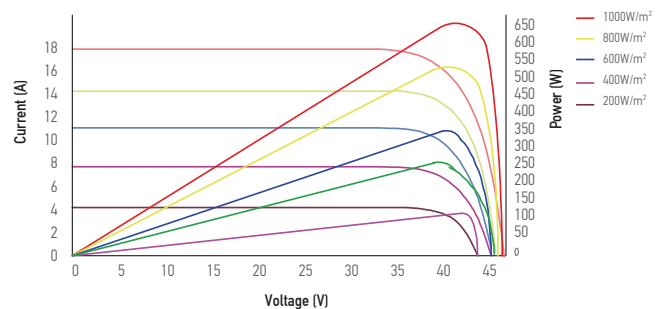
(4) Bifaciality Factor > 70% - Back-side power gain depends upon the specific project albedo - Efficiency is according to the surface of the module

Mechanical Data

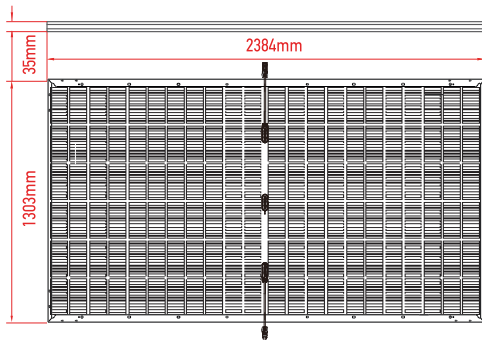
Dimensions	2384mm x 1303mm x 35mm
Weight	34 Kg
Cell Type	Mono Perc - 210mm x 105mm (2 x 66 Pcs) - G12
Front Glass	3.2mm Tempered and low iron glass + ARC
Rear Side	Anti-aging film (Clear)
Frame	Anodized Aluminium Alloy
Junction Box	IP68 - 3 Bypass diodes
Connector	MC4 compatible
Output cable	4 mm ² - Length = 320mm or customized

I-V Curve

The module relative power loss at low light irradiance of 200W/m² is less than 3%.



Dimensions



RECOM assumes no liability or responsibility for any typographical error, layout error, misinformation, any other error, omission, contained herein.

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Temperature Characteristics

P _{max} Temperature Coefficient	-0.34% / °C
V _{oc} Temperature Coefficient	-0.25% / °C
I _{sc} Temperature Coefficient	+0.04% / °C
Operating Temperature	-40~+85 °C
Nominal Operating Module Temperature (NMOT)	42 ± 2°C

Packing Configuration

Container	40'HC
Pieces per Pallet	32
Pallets per Container	18
Pieces per Container	(32+32) x 9=576 pcs

The specification and key features described in this datasheet may deviate slightly and are not guaranteed. Due to on-going innovation, research and product enhancement, RECOM Technologies reserves the right to make any adjustment to the information described herein at any time without notice. Please always obtain the most recent version of the datasheet which shall be duly incorporated into the binding contract made by the parties governing all transactions related to the purchase and sale of the products described herein. Please read the safety and installation instructions before using the modules.