



**SKYWORTH**  
Make Every Ray of Sunshine Count

# All-Black Solar Panels-48 435-460W



#### Highly Anti PID

linear power warranty with first year  $\leq 1\%$  degradation and an annual degradation rate of up to 0.4% after that



#### Better low irradiance response

Superior power generation under shading conditions



#### Highly reliable

15-year product warranty, 30-year linear power output warranty



#### Improvement in power generation performance

Conversion efficiency up to 22.5%



#### Bifacial Energy Yield | N-type Silicon Wafer

Bifacial rate of up to 80%, module additional power generation of up to 10% over regular modules

#### QUALITY SYSTEM

IEC 61215(2021), IEC 61730(2018)

ISO 9001:2015: Quality management systems

ISO 14001:2015: Environmental management systems

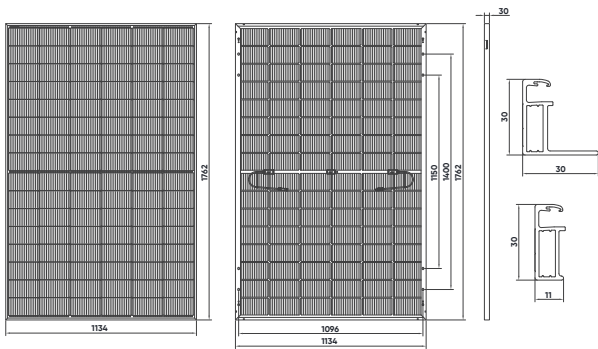
ISO 45001:2018: Occupational health and safety management systems

All Rights Reserved @Shenzhen Skyworth Photovoltaic Technology Co., LTD. Please refer to the latest version for any updates

# Electrical Characteristics

Module Type	QM210R THCDH-435-48	QM210R THCDH-440-48	QM210R THCDH-445-48	QM210R THCDH-450-48	QM210R THCDH-455-48	QM210R THCDH-460-48
	STC	STC	STC	STC	STC	STC
Maximum Power[W]	435	440	445	450	455	460
Maximum Power Voltage[V]	29.55	29.85	30.15	30.45	30.72	31.00
Maximum Power Current[A]	14.72	14.74	14.76	14.78	14.81	14.84
Open circuit voltage[V]	35.08	35.38	35.68	35.98	36.32	36.66
Short Circuit Current[A]	15.46	15.48	15.50	15.52	15.53	15.54
Module Efficiency	<b>21.8%</b>	<b>22.0%</b>	<b>22.3%</b>	<b>22.5%</b>	<b>22.8%</b>	<b>23.0%</b>
Operating Temperature	-40°C~+85°C					
Maximum System Voltage	DC 1500V					
Maximum Series Fuse Rating	35A					
Power Tolerance[W]	0~+5W					
Voc Temperature Coefficient	-0.25%/°C					
Pmax Temperature Coefficient	-0.29%/°C					
Isc Temperature Coefficient	0.045%/°C					
Nominal Operating Cell Temperature	45±2°C					

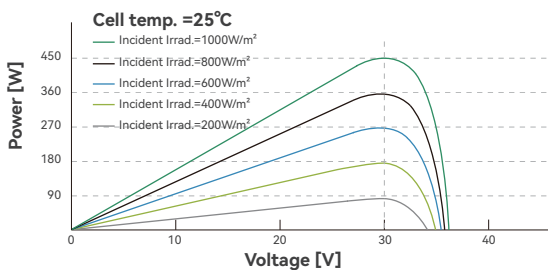
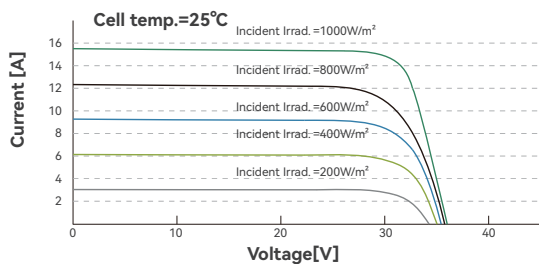
## Technical drawing



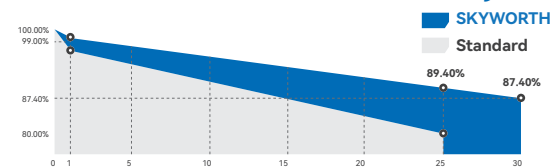
## Mechanical Specifications

Solar Cells	96(48×2)
Dimension	1762×1134×30mm
Weight	24.5kg
Front Glass	2.0mm AR coated heat strengthened-Glass
Back Glass	2.0mm heat strengthened-Glass
Frame	Anodized aluminium alloy
Junction Box	IP68 / 3 diodes
Output Cables	4mm <sup>2</sup> (IEC),+1200mm/-1200mm or customized
Bifaciality	ed 80%+5%

## Characteristic



## Linear Performance Warranty



**15 YEARS** 15-year product warranty  
**30 YEARS** 30-year linear power output warranty  
**0.4%** year 2-30 power degradation

## Level

Fire Performance	C
Security Protection	Class II

## Packing Configuration

Pallet	36pcs/Pallet
Container	936pcs/40HQ Container