



M10 HIEFF TWIN MONO by SUNPRO

SPDGXXX-108M10
(XXX=390~410)

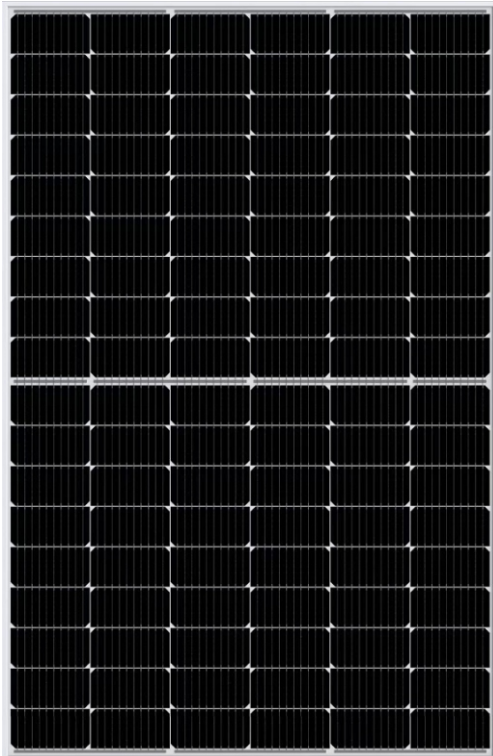
HIGH EFFICIENCY



ISO 14001

ISO 9001

ISO 45001



POWER TOLERANCE

0~+3%



WITHSTAND STRONG SNOW LOAD

5400 Pa/ WIND LOAD 2400 Pa



NEW TECHNOLOGY: HIEFF UP TO 20,92%

Higher yield per surface area,
lower BOS costs, higher power classes,
and an efficiency rate of up to 20.92%.

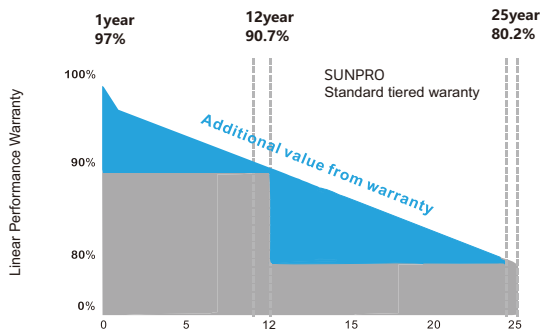


PRODUCT WITH HIEFF BY SUNPRO TECHNOLOGY

SUNPRO DUO combines cutting edge cell
separation and innovative 10-busbar design
with SUNPRO Technology.

Reliability & Certification

Product Guarantee: **12-year**
Linear Performance Warranty
12-year:90.7% power output
25-year:80.2% power output



Product Specification

Electrical parameters at standard test conditions
(STC:AM=1.5, 1000W/m², Cells Temperature 25°C)

Typical type	390W	395W	400W	405W	410W
Max power(Pmax)	390	395	400	405	410
Max power voltage(Vmp)	30.50	30.70	30.90	31.10	31.30
Max power current(Imp)	12.79	12.87	12.95	13.03	13.10
Open circuit voltage (Voc)	36.70	36.90	37.10	37.30	37.50
Short circuit current (Isc)	13.54	13.62	13.70	13.78	13.86
Module Efficiency(%)	19.90	20.15	20.41	20.66	20.92
Max system voltage	DC 1500V(TUV) / DC 1000V(TUV)				
Maximum Series Fuse Rating	30A				

Electrical parameters at NMOT test conditions

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

Item	390W	395W	400W	405W	410W
Max power(Pmax)	291.50	295.20	299.00	302.70	306.30
Max power voltage(Vmp)	28.30	28.50	28.70	28.90	29.10
Max power current(Imp)	10.28	10.34	10.41	10.47	10.54
Open circuit voltage (Voc)	34.30	34.50	34.70	34.80	35.00
Short circuit current (Isc)	10.94	11.00	11.06	11.13	11.19

Electrical Characteristics with 25% Rear Side Power Gain

Item	390W	395W	400W	405W	410W
Front power Pmax/W	390	395	400	405	410
Total power Pmax/W	488	494	500	506	513
Vmp/V(Total)	30.60	30.80	31.00	31.20	31.40
Imp/A(Total)	15.93	16.03	16.13	16.23	16.32
Voc/V(Total)	36.80	37.00	37.20	37.40	37.60
Isc/A(Total)	16.87	16.97	17.06	17.16	17.27

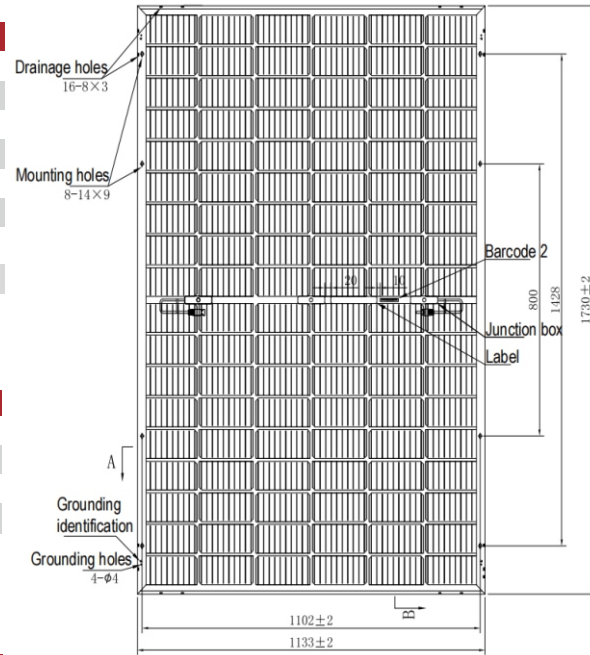
Mechanical Data

Item	Specification
Dimensions	1730x1133x30mm
Weight	24.5kg
Glass	2.0mm+2.0mm High Transmission, AR Coated Heat Strengthened Glass
Output cables	4mm ² symmetrical lengths 350mm
Connectors	MC4 compatible IP68
Cell type	Mono-Crystalline PERC Half-Cell 10BB
Number of cells	108 cells in series

Test, Certifications and Warranties

Item	Specification
Standard tests	IEC 61215, IEC 61730, IEC 61701, IEC 62716, PPP 58042B
System certs	ISO 9001, ISO14001, ISO45001
Certifications	TUV, AMMONIA AND SALT MIST CORROSION, ANTI-PID, CE, WEEE, INMERTRO
Extreme wind and snow loads testing	Withstand extreme wind(2400 Pascal) and snow loads(5400 Pascal)
Power tolerance	0~+3%
Junction box	IP68
Warranties	12 years product warranty and 25 years 80% of power

Dimensions and Structure



Temperature Characteristics

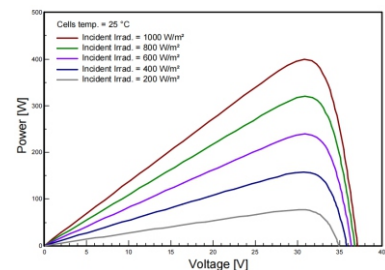
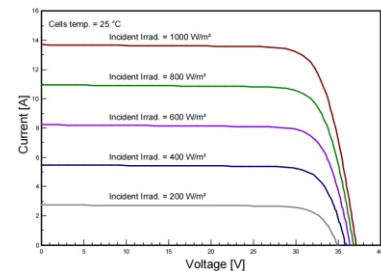
Item	Specification
Temp.Coeff.of Isc(TK Isc)	0.05%/°C
Temp.Coeff.of Voc(TK Voc)	-0.29%/°C
Temp.Coeff.of Pmax(TK Pmax)	-0.35%/°C
Operating temperature	-40~+85°C
Normal operating cell temperature	44±2°C

Packing Configuration

Item	Specification
Container	40'HQ
Pieces per pallet	36
Pallets per container	/
Pieces per container	936

I-V Curve

I-V characteristics at different temperature





M10 HIEFF TWIN MONO by SUNPRO

SPDGXXX-120M10
(XXX=430~450)

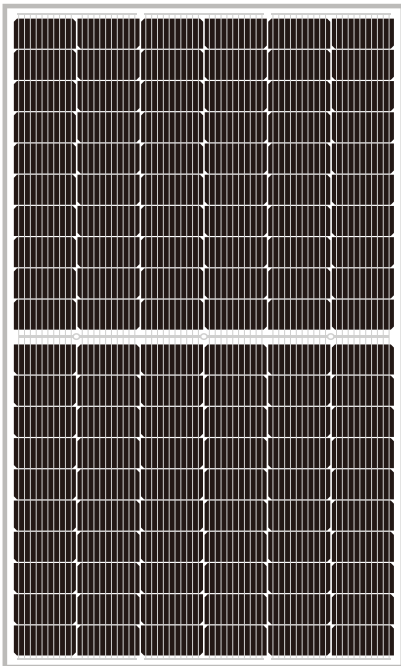
HIGH EFFICIENCY



ISO 14001

ISO 9001

ISO 45001



POWER TOLERANCE

0~+3%



WITHSTAND STRONG SNOW LOAD

5400 Pa/ WIND LOAD 2400 Pa



NEW TECHNOLOGY: HIEFF UP TO 20,74%

Higher yield per surface area,
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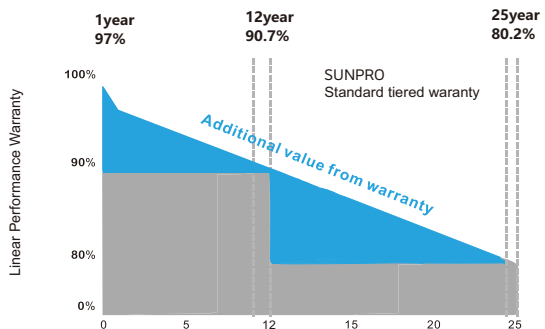


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Reliability & Certification

Product Guarantee: **12-year**
Linear Performance Warranty
12-year:90.7% power output
25-year:80.2% power output



Product Specification

Electrical parameters at standard test conditions
(STC:AM=1.5, 1000W/m², Cells Temperature 25°C)

Typical type	430W	435W	440W	445W	450W
Max power(Pmax)	430	435	440	445	450
Max power voltage(Vmp)	33.81	34.07	34.32	34.56	34.81
Max power current(Imp)	12.72	12.77	12.83	12.88	12.93
Open circuit voltage (Voc)	40.60	40.80	41.10	41.30	41.50
Short circuit current (Isc)	13.50	13.55	13.60	13.65	13.70
Module Efficiency(%)	19.85	20.08	20.31	20.55	20.78
Max system voltage	DC 1500V(TUV) / DC 1000V(TUV)				
Maximum Series Fuse Rating	30A				

Electrical parameters at NMOT test conditions

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

Item					
Max power(Pmax)	321.80	325.30	328.80	332.60	336.30
Max power voltage(Vmp)	31.40	31.60	31.80	32.00	32.10
Max power current(Imp)	10.24	10.29	10.34	10.40	10.46
Open circuit voltage (Voc)	38.00	38.20	38.40	38.60	38.80
Short circuit current (Isc)	10.89	10.94	11.00	11.06	11.11

Electrical Characteristics with 25% Rear Side Power Gain

Item					
Front power Pmax/W	430	435	440	445	450
Total power Pmax/W	538	544	550	556	563
Vmp/V(Total)	33.90	34.10	34.30	34.50	34.70
Imp/A(Total)	15.86	15.95	16.03	16.12	16.21
Voc/V(Total)	40.80	41.00	41.20	41.40	41.60
Isc/A(Total)	16.79	16.88	16.97	17.06	17.14

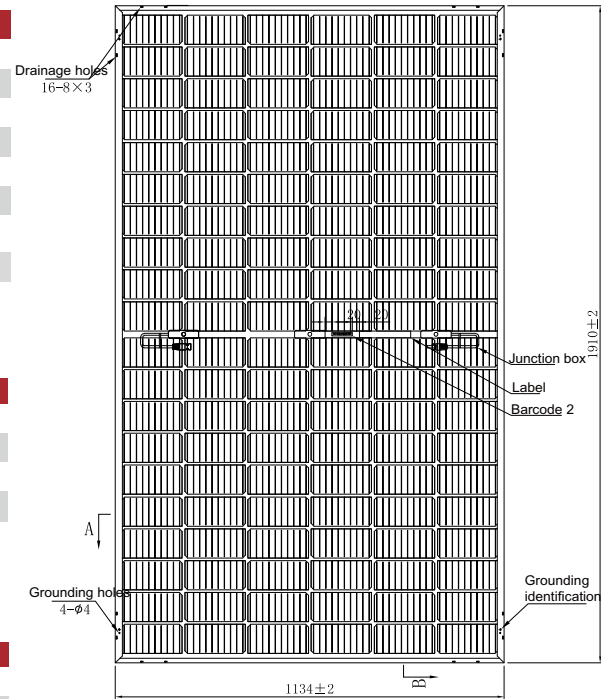
Mechanical Data

Item	Specification
Dimensions	1910x1134x30mm
Weight	28kg
Glass	2.0mm+2.0mm High Transmission, AR Coated Heat Strengthened Glass
Output cables	4mm ² symmetrical lengths 350mm
Connectors	MC4 compatible IP68
Cell type	Mono-Crystalline PERC Half-Cell 9BB
Number of cells	120 cells in series

Test, Certifications and Warranties

Item	Specification
Standard tests	IEC 61215, IEC 61730, IEC 61701, IEC 62716, PPP 58042B
System certs	ISO 9001, ISO14001, ISO45001
Certifications	TUV, AMMONIA AND SALT MIST CORROSION, ANTI-PID, CE, WEEE, INMERTRO
Extreme wind and snow loads testing	Withstand extreme wind(2400 Pascal) and snow loads(5400 Pascal)
Power tolerance	0~+3%
Junction box	IP68
Warranties	12 years product warranty and 25 years 80% of power

Dimensions and Structure



Temperature Characteristics

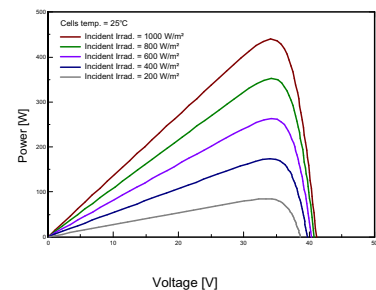
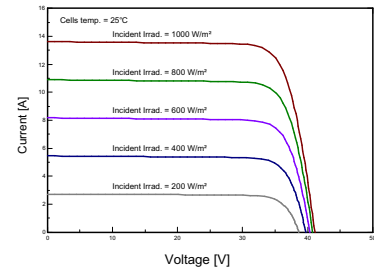
Item	Specification
Temp.Coeff.of Isc(TK Isc)	0.05%/°C
Temp.Coeff.of Voc(TK Voc)	-0.29%/°C
Temp.Coeff.of Pmax(TK Pmax)	-0.36%/°C
Operating temperature	-40~+85°C
Normal operating cell temperature	44±2°C

Packing Configuration

Item	Specification
Container	40'HQ
Pieces per pallet	36
Pallets per container	/
Pieces per container	864

I-V Curve

I-V characteristics at different temperature



M10 HIEFF TWIN MONO by SUNPRO

SP-DGXXX-144M10

(XXX=520~545)

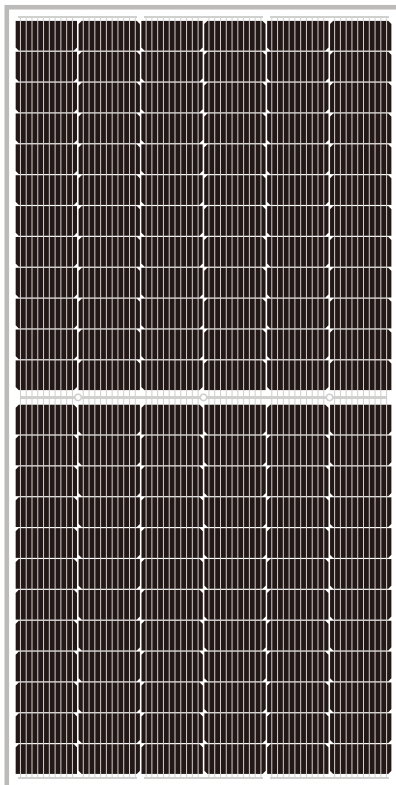
HIGH EFFICIENCY



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POWER TOLERANCE

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WITHSTAND STRONG SNOW LOAD

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Higher yield per surface area,
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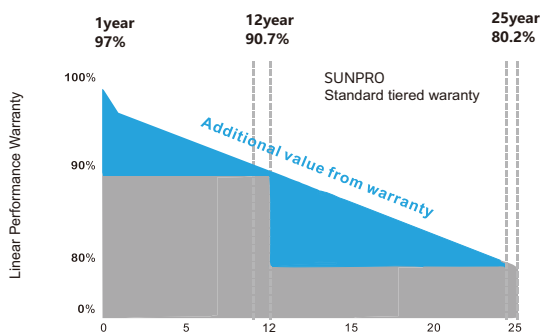


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Reliability & Certification

Product Guarantee: **12-year**
Linear Performance Warranty
12-year:90.7% power output
25-year:80.2% power output



Product Specification

Electrical parameters at standard test conditions
(STC:AM=1.5, 1000W/m², Cells Temperature 25°C)

Typical type	520W	525W	530W	535W	540W	545W
Max power(Pmax)	520	525	530	535	540	545
Max power voltage(Vmp)	40.70	40.9	41.1	41.3	41.5	41.7
Max power current(Imp)	12.79	12.85	12.91	12.96	13.02	13.07
Open circuit voltage (Voc)	49.00	49.20	49.40	49.60	49.80	50.00
Short circuit current (Isc)	13.53	13.59	13.65	13.71	13.77	13.83
Module Efficiency(%)	20.12	20.31	20.51	20.70	20.89	21.09
Max system voltage	DC 1500V(TUV) / DC 1000V(TUV)					
Maximum Series Fuse Rating	30A					

Electrical parameters at NMOT test conditions

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

Item	520W	525W	530W	535W	540W	545W
Max power(Pmax)	388.80	392.70	396.40	399.90	403.60	406.80
Max power voltage(Vmp)	37.90	38.00	38.20	38.40	38.50	38.80
Max power current(Imp)	10.26	10.33	10.38	10.42	10.47	10.49
Open circuit voltage (Voc)	45.80	46.00	46.20	46.30	46.50	46.70
Short circuit current (Isc)	10.93	10.98	11.02	11.07	11.12	11.17

Electrical Characteristics with 25% Rear Side Power Gain

Item	520W	525W	530W	535W	540W	545W
Front power Pmax/W	520	525	530	535	540	545
Total power Pmax/W	650	656	663	669	675	681
Vmp/V(Total)	40.80	41.00	41.20	41.40	41.60	41.80
Imp/A(Total)	15.93	16.01	16.08	16.15	16.23	16.30
Voc/V(Total)	49.10	49.30	49.50	49.70	49.90	50.10
Isc/A(Total)	16.87	16.95	17.02	17.10	17.17	17.25

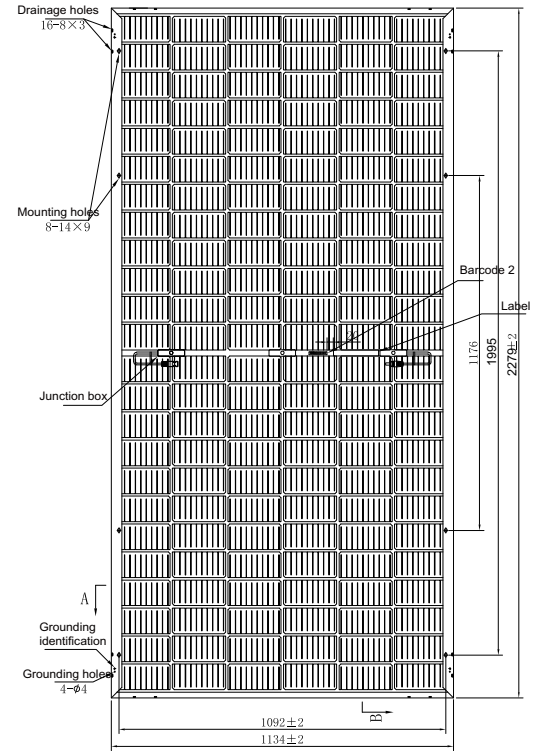
Mechanical Data

Item	Specification
Dimensions	2279x1134x35mm
Weight	34kgs
Glass	2.0mm+2.0mm 3.2mm, High Transmission, AR Coated Tempered Glass
Output cables	4mm ² symmetrical lengths 350mm
Connectors	MC4 compatible IP68
Cell type	Mono-Crystalline PERC Half-Cell 10BB
Number of cells	144 cells in series

Test, Certifications and Warranties

Item	Specification
Standard tests	IEC 61215, IEC 61730, IEC 61701, IEC 62716, PPP 58042B
System certs	ISO 9001, ISO14001, ISO45001
Certifications	TUV, AMMONIA AND SALT MIST CORROSION, ANTI-PID, CE, WEEE, INMERTRO
Extreme wind and snow loads testing	Withstand extreme wind(2400 Pascal) and snow loads(5400 Pascal)
Power tolerance	0~+3%
Junction box	IP68
Warranties	12 years product warranty and 25 years 80% of power

Dimensions and Structure



Temperature Characteristics

Item	Specification
Temp.Coeff.of Isc(TK Isc)	0.05%/°C
Temp.Coeff.of Voc(TK Voc)	-0.29%/°C
Temp.Coeff.of Pmax(TK Pmax)	-0.35%/°C
Operating temperature	-40~+85°C
Normal operating cell temperature	44±2°C

Packing Configuration

Item	Specification
Container	40'HQ
Pieces per pallet	30
Pallets per container	/
Pieces per container	600

I-V Curve

I-V characteristics at different temperature

