



Certificate of Compliance

Certificate: 70206445

Master Contract: 259668

Project: 80059896

Date Issued: 2021-04-12

Issued to: Risen Energy Co., Ltd.
No. 23 Middle Xingke Road,
Ninghai, Ningbo, Zhejiang, 315609
P.R. CHINA
Attention: Suber Yang

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only



Issued by: *Simon Shen*
Simon Shen

PRODUCTS

CLASS - C531110 - POWER SUPPLIES-Photovoltaic Modules and Panels

CLASS - C531190 - POWER SUPPLIES-Photovoltaic Modules and Panels - Certified to US Standards

Photovoltaic modules with maximum DC system voltage of 1500 V, Safety Class II.

Model series:

RSM72-6-xxxBMDG (xxx = 350 to 410 W),
RSM60-6-xxxBMDG (xxx = 290 to 345 W),
RSM144-6-xxxBMDG (xxx = 360 to 415 W),
RSM132-6-xxxBMDG (xxx = 330 to 380 W),
RSM120-6-xxxBMDG (xxx = 300 to 350 W),
RSM144-7-xxxBMDG (xxx = 425 to 455 W),
RSM132-7-xxxBMDG (xxx = 390 to 420 W),
RSM120-7-xxxBMDG (xxx = 355 to 380 W),
RSM150-8-xxxBMDG (xxx = 465 to 510 W),
RSM90-8-xxxBMDG (xxx = 285 to 300 W),
RSM144-9-xxxBMDG (xxx = 520 to 550 W),
RSM132-9-xxxBMDG (xxx = 480 to 505 W),
RSM120-9-xxxBMDG (xxx = 435 to 460 W),
RSM156-6-xxxBHDG (xxx = 435 to 465 W),



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RSM144-6-xxxBHDG (xxx = 400 to 430 W),
RSM120-6-xxxBHDG (xxx = 330 to 360 W).

Model	Open Circuit Voltage at STC (V dc)	Short Circuit Current at STC (A dc)	Rated Voltage at STC (V dc)	Rated Current at STC (A dc)	Rated Maximum Power at STC (Watts)	Maximum over-current protection rating (A)
RSM72-6-xxxBMDG (xxx = 350 to 410 W)						
RSM72-6-350BMDG	46.60	9.70	38.30	9.15	350	20
RSM72-6-355BMDG	46.95	9.75	38.65	9.20	355	20
RSM72-6-360BMDG	47.30	9.80	38.95	9.25	360	20
RSM72-6-365BMDG	47.70	9.85	39.25	9.30	365	20
RSM72-6-370BMDG	48.15	9.90	39.60	9.35	370	20
RSM72-6-375BMDG	48.60	9.95	39.95	9.40	375	20
RSM72-6-380BMDG	48.95	10.00	40.25	9.45	380	20
RSM72-6-385BMDG	49.35	10.05	40.55	9.50	385	20
RSM72-6-390BMDG	49.70	10.10	40.85	9.55	390	20
RSM72-6-395BMDG	50.10	10.15	41.20	9.60	395	20
RSM72-6-400BMDG	50.45	10.20	41.50	9.65	400	20
RSM72-6-405BMDG	50.85	10.25	41.80	9.70	405	20
RSM72-6-410BMDG	51.20	10.30	42.10	9.75	410	20
RSM60-6-xxxBMDG (xxx = 290 to 345 W)						
RSM60-6-290BMDG	38.60	9.65	31.900	9.10	290	20
RSM60-6-295BMDG	38.80	9.70	32.250	9.15	295	20
RSM60-6-300BMDG	39.10	9.75	32.650	9.20	300	20
RSM60-6-305BMDG	39.40	9.80	33.00	9.25	305	20
RSM60-6-310BMDG	39.80	9.85	33.35	9.30	310	20
RSM60-6-315BMDG	40.10	9.90	33.70	9.35	315	20
RSM60-6-320BMDG	40.50	9.95	34.05	9.40	320	20
RSM60-6-325BMDG	40.80	10.00	34.40	9.45	325	20
RSM60-6-330BMDG	41.10	10.05	34.75	9.50	330	20
RSM60-6-335BMDG	41.40	10.10	35.10	9.55	335	20
RSM60-6-340BMDG	41.95	10.15	35.45	9.60	340	20
RSM60-6-345BMDG	42.35	10.20	35.80	9.65	345	20
RSM144-6-xxxBMDG (xxx = 360 to 415 W)						
RSM144-6-360BMDG	47.30	9.70	39.60	9.10	360	20
RSM144-6-365BMDG	47.45	9.80	39.70	9.20	365	20
RSM144-6-370BMDG	47.60	9.90	39.80	9.30	370	20
RSM144-6-375BMDG	47.75	10.00	39.90	9.40	375	20
RSM144-6-380BMDG	48.00	10.10	40.05	9.50	380	20
RSM144-6-385BMDG	48.15	10.20	40.15	9.60	385	20
RSM144-6-390BMDG	48.30	10.30	40.25	9.70	390	20



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Model	Open Circuit Voltage at STC (V dc)	Short Circuit Current at STC (A dc)	Rated Voltage at STC (V dc)	Rated Current at STC (A dc)	Rated Maximum Power at STC (Watts)	Maximum over-current protection rating (A)
RSM144-6-395BMDG	48.45	10.40	40.35	9.80	395	20
RSM144-6-400BMDG	48.60	10.50	40.45	9.90	400	20
RSM144-6-405BMDG	48.75	10.60	40.55	10.00	405	20
RSM144-6-410BMDG	48.90	10.70	40.65	10.10	410	20
RSM144-6-415BMDG	49.00	10.80	40.70	10.20	415	20
RSM132-6-xxxBMDG (xxx = 330 to 380 W)						
RSM132-6-330BMDG	43.40	9.70	36.30	9.10	330	20
RSM132-6-335BMDG	43.50	9.80	36.45	9.20	335	20
RSM132-6-340BMDG	43.60	9.90	36.60	9.30	340	20
RSM132-6-345BMDG	43.70	10.00	36.75	9.40	345	20
RSM132-6-350BMDG	43.80	10.10	36.90	9.50	350	20
RSM132-6-355BMDG	43.90	10.19	37.05	9.60	355	20
RSM132-6-360BMDG	44.00	10.29	37.20	9.69	360	20
RSM132-6-365BMDG	44.10	10.38	37.35	9.79	365	20
RSM132-6-370BMDG	44.20	10.48	37.50	9.88	370	20
RSM132-6-375BMDG	44.30	10.58	37.65	9.97	375	20
RSM132-6-380BMDG	44.40	10.68	37.80	10.07	380	20
RSM120-6-xxxBMDG (xxx = 300 to 350 W)						
RSM120-6-300BMDG	39.40	9.70	33.00	9.10	300	20
RSM120-6-305BMDG	39.50	9.80	33.20	9.20	305	20
RSM120-6-310BMDG	39.70	9.90	33.35	9.30	310	20
RSM120-6-315BMDG	39.80	10.00	33.55	9.40	315	20
RSM120-6-320BMDG	40.00	10.10	33.70	9.50	320	20
RSM120-6-325BMDG	40.10	10.20	33.90	9.60	325	20
RSM120-6-330BMDG	40.30	10.30	34.05	9.70	330	20
RSM120-6-335BMDG	40.40	10.40	34.20	9.80	335	20
RSM120-6-340BMDG	40.50	10.50	34.40	9.90	340	20
RSM120-6-345BMDG	40.60	10.60	34.55	10.00	345	20
RSM120-6-350BMDG	40.70	10.70	34.70	10.10	350	20
RSM144-7-xxxBMDG (xxx = 425 to 455 W)						
RSM144-7-425BMDG	49.20	11.00	40.90	10.40	425	25
RSM144-7-430BMDG	49.30	11.10	40.96	10.50	430	25
RSM144-7-435BMDG	49.40	11.20	41.05	10.60	435	25
RSM144-7-440BMDG	49.50	11.30	41.13	10.70	440	25
RSM144-7-445BMDG	49.60	11.40	41.25	10.80	445	25
RSM144-7-450BMDG	49.70	11.50	41.30	10.90	450	25
RSM144-7-455BMDG	49.80	11.60	41.40	11.00	455	25
RSM132-7-xxxBMDG (xxx = 390 to 420 W)						



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Model	Open Circuit Voltage at STC (V dc)	Short Circuit Current at STC (A dc)	Rated Voltage at STC (V dc)	Rated Current at STC (A dc)	Rated Maximum Power at STC (Watts)	Maximum over-current protection rating (A)
RSM132-7-390BMDG	45.10	10.90	37.43	10.50	390	25
RSM132-7-395BMDG	45.20	11.00	37.52	10.60	395	25
RSM132-7-400BMDG	45.30	11.10	37.60	10.70	400	25
RSM132-7-405BMDG	45.40	11.20	37.68	10.80	405	25
RSM132-7-410BMDG	45.50	11.30	37.77	10.90	410	25
RSM132-7-415BMDG	45.60	11.40	37.85	11.00	415	25
RSM132-7-420BMDG	45.70	11.50	37.93	11.10	420	25
RSM120-7-xxxBMDG (xxx = 355 to 380 W)						
RSM120-7-355BMDG	40.60	11.30	33.20	10.70	355	25
RSM120-7-360BMDG	40.70	11.42	33.35	10.80	360	25
RSM120-7-365BMDG	40.80	11.54	33.50	10.90	365	25
RSM120-7-370BMDG	40.90	11.66	33.65	11.00	370	25
RSM120-7-375BMDG	41.00	11.78	33.80	11.10	375	25
RSM120-7-380BMDG	41.10	11.90	33.95	11.20	380	25
RSM150-8-xxxBMDG (xxx = 465 to 510 W)						
RSM150-8-465BMDG	49.47	11.97	41.34	11.26	465	25
RSM150-8-470BMDG	49.69	12.04	41.56	11.32	470	25
RSM150-8-475BMDG	49.91	12.11	41.78	11.38	475	25
RSM150-8-480BMDG	50.13	12.18	42.00	11.44	480	25
RSM150-8-485BMDG	50.35	12.25	42.22	11.50	485	25
RSM150-8-490BMDG	50.57	12.32	42.44	11.56	490	25
RSM150-8-495BMDG	50.79	12.39	42.66	11.62	495	25
RSM150-8-500BMDG	51.01	12.46	42.88	11.68	500	25
RSM150-8-505BMDG	51.23	12.53	43.10	11.74	505	25
RSM150-8-510BMDG	51.45	12.60	43.32	11.80	510	25
RSM90-8-xxxBMDG (xxx = 285 to 300 W)						
RSM90-8-285BMDG	29.94	12.11	25.07	11.38	285	25
RSM90-8-290BMDG	30.21	12.25	25.33	11.47	290	25
RSM90-8-295BMDG	30.46	12.32	25.57	11.56	285	25
RSM90-8-300BMDG	30.68	12.39	25.81	11.65	290	25
RSM144-9-xxxBMDG (xxx = 520 to 550 W)						
RSM144-9-520BMDG	49.20	13.35	41.55	12.52	520	25
RSM144-9-525BMDG	49.30	13.45	41.65	12.61	525	25
RSM144-9-530BMDG	49.40	13.55	41.75	12.70	530	25
RSM144-9-535BMDG	49.50	13.64	41.87	12.79	535	25
RSM144-9-540BMDG	49.60	13.73	41.99	12.88	540	25
RSM144-9-545BMDG	49.70	13.84	42.11	12.96	545	25
RSM144-9-550BMDG	49.80	13.94	42.20	13.04	550	25



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RSM132-9-xxxBMDG (xxx = 480 to 505 W)						
RSM132-9-480BMDG	45.30	13.49	38.10	12.60	480	25
RSM132-9-485BMDG	45.40	13.59	38.20	12.70	485	25
RSM132-9-490BMDG	45.50	13.69	38.30	12.80	490	25
RSM132-9-495BMDG	45.60	13.79	38.40	12.90	495	25
RSM132-9-500BMDG	45.70	13.89	38.51	12.99	500	25
RSM132-9-505BMDG	45.80	13.99	38.62	13.08	505	25
RSM120-9-xxxBMDG (xxx = 435 to 460 W)						
RSM120-9-435BMDG	40.30	13.47	34.68	12.55	435	25
RSM120-9-440BMDG	40.40	13.57	34.79	12.65	440	25
RSM120-9-445BMDG	40.50	13.68	34.91	12.75	445	25
RSM120-9-450BMDG	40.60	13.78	35.05	12.85	450	25
RSM120-9-455BMDG	40.70	13.88	35.15	12.95	455	25
RSM120-9-460BMDG	40.80	13.98	35.25	13.05	460	25
RSM156-6-xxxBHDG (xxx = 435 to 465 W)						
RSM156-6-435BHDG	58.40	9.55	48.53	8.97	435	20
RSM156-6-440BHDG	58.70	9.60	48.83	9.02	440	20
RSM156-6-445BHDG	59.00	9.65	49.13	9.07	445	20
RSM156-6-450BHDG	59.30	9.70	49.43	9.12	450	20
RSM156-6-455BHDG	59.60	9.75	49.73	9.16	455	20
RSM156-6-460BHDG	59.90	9.80	50.03	9.20	460	20
RSM156-6-465BHDG	60.20	9.85	50.33	9.25	465	20
RSM144-6-xxxBHDG (xxx = 400 to 430 W)						
RSM144-6-400BHDG	53.50	9.55	44.75	8.95	400	20
RSM144-6-405BHDG	53.80	9.60	45.05	9.00	405	20
RSM144-6-410BHDG	54.10	9.65	45.35	9.05	410	20
RSM144-6-415BHDG	54.40	9.70	45.65	9.10	415	20
RSM144-6-420BHDG	54.70	9.75	45.95	9.15	420	20
RSM144-6-425BHDG	55.00	9.80	46.25	9.20	425	20
RSM144-6-430BHDG	55.30	9.85	46.55	9.25	430	20
RSM120-6-xxxBHDG (xxx = 330 to 360 W)						
RSM120-6-330BHDG	44.35	9.55	37.10	8.91	330	20
RSM120-6-335BHDG	44.65	9.60	37.40	8.97	335	20
RSM120-6-340BHDG	44.95	9.65	37.70	9.03	340	20
RSM120-6-345BHDG	45.25	9.70	38.00	9.09	345	20
RSM120-6-350BHDG	45.55	9.75	38.30	9.15	350	20
RSM120-6-355BHDG	45.85	9.80	38.60	9.21	355	20
RSM120-6-360BHDG	46.15	9.85	38.90	9.27	360	20

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Note:

1. All electrical data are shown as relative to standard test conditions (STC) (1000 W/m², (25 ± 2) °C, AM 1.5 according to IEC 60904-3).
2. The manufacturer declared tolerance of Open-circuit voltage, Short-circuit current, Maximum power is ±3%, ±4%, ±3% respectively.
3. The maximum over-current protection rating is 20A or 25A.
4. The manufacturer declared Bifaciality coefficient of bifacial module at STC for maximum power is 75±5%. The electrical power performance shown in the table above is only generated by front side of the module, more power may be generated if considering back side of the module.
5. The operating ambient temperature of these devices may exceed 40 °C at full load for all wire sizes if it is determined suitable in the field use application.

APPLICABLE REQUIREMENTS

CSA-C22.2 No. 61730-1:19	Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction, 2019-12
CSA-C22.2 No. 61730-2:19	Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing, 2019-12
UL 61730-1 First Edition	Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction, 2017-12-04, revision date 2020-04-30
UL 61730-2 First Edition	Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing, 2017-12-04, revision date 2020-04-30



Supplement to Certificate of Compliance

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Master Contract: 259668

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80059896	2021-04-12	Update report 70206445 to add new 9BB bifacial 158.75mm*79.395mm cell ECG19BSE2 type from ET Solar.
80030794	2021-03-25	Update report 70206445 to add new RSM156-6-xxxBHDG, RSM144-6-xxxBHDG, RSM120-6-xxxBHDG model series, add RSYCB158B type 158.75mm*79.38mm N type HJT new cell from Risen Energy Co., Ltd., add Sn43Pb43Bi14 new interconnect ribbon, add new UV-100 type fixing tape from 3M.
80067736	2021-03-03	Update report 70206445 to add new 9BB bifacial 158.75mm*79.375mm cell M158.75/D223 (16.8) -9BB-Bifacial-Half-PERC from Talesun Technologies (Thailand) Co., Ltd.
80066677	2021-02-23	Update report 70206445 to add new 9BB bifacial 166mm*83mm cell M166-9BB-Bifacial-Half-PERC from Talesun Technologies (Thailand) Co., Ltd.
80065071	2021-02-09	Update report 70206445 to add new RSM144-9-xxxBMDG, RSM132-9-xxxBMDG, RSM120-9-xxxBMDG model series, add new 10BB bifacial 182mm*91mm cell RSTDB182S from Risen, add new specifications for end ribbon, add new flux WTO-PV112B type from Shenzhen Vital Material Company Limited.
80059944	2020-11-20	Update report 70206445 to add new RSM150-8-xxxBMDG, RSM90-8-xxxBMDG model series, add new 9BB bifacial 1/3 cut cell M2109BPERCBP from Tongwei, new fixing tape FF-3665 from Cybrid Technologies Inc., new EVA 9110T/POE PO8110 combination from 3M China Ltd., new junction box potting JS-1184 and junction box adhesive JS-606 from Hangzhou Zhijiang Silicone Chemicals Co., Ltd., new frame adhesive JS-606 from Hangzhou Zhijiang Silicone Chemicals Co., Ltd.
80056572	2020-10-26	Update report 70206445 to add 531190 Class number for Risen Energy (Changzhou) Co., Ltd. (0000600986-Agreement contract).
80039515	2020-08-24	Update report 70206445 to add new RSM144-7-xxxBMDG, RSM132-7-xxxBMDG, RSM120-7-xxxBMDG model series, add new 9BB bifacial cell RSTDB166S from Risen, new flux SF105 from Asahi Solder, new fixing tape HZ UV-100 from Huizhou Zhikuan Technology, new EVA SV-15296P/POE SE556 combination from Changzhou Sveck PV New Material Co., Ltd., new junction box PV-SY017-25 from Zhejiang Twinsel and related cable, connector, bypass diode, potting, adhesive.



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80039517	2020-06-10	Update report to add new POE PO8110 manufactured by 3M Company.
80041966	2020-05-07	Update report to add new junction box potting 5299W-S manufactured by Shanghai Huitian New Material Co., Ltd. and new junction box adhesive and frame adhesive manufactured by Shanghai Huitian New Material Co., Ltd.
80039516	2020-04-22	Update report to add new RSM72-6-xxxBMDG, RSM60-6-xxxBMDG model series.
80039894	2020-04-16	Update report to add a new manufacturer Risen Energy (YIWU) Co., Ltd., admin project to active the manufacturer in internal system.
80027015	2020-03-13	Update report to add new bifacial cell RSTDB156S (9BB) manufactured by TAINERGY TECH CO., LTD., add 0.35mm in diameter interconnect ribbon and update the standard from CAN/CSA-C22.2 No. 61730-1:11 to the latest standard CAN/CSA-C22.2 No. 61730-1:19.
80030795	2020-01-21	Update report to add a new manufacturer Risen Energy (YIWU) Co., Ltd.
80018285	2019-12-30	Update report to add new bifacial cell RSTDB156S (9BB) manufactured by Risen Energy Co., Ltd.
80027016	2019-12-20	Addition of new factory “Risen Energy (Changzhou) Co., Ltd.”
70206445	2019-05-29	CSA C/US Certification for Double Glass Bifacial PV Modules, Model Series RSM144-6-xxxBMDG (xxx = 360 to 405 W), RSM132-6-xxxBMDG (xxx = 330 to 370 W), and RSM120-6-xxxBMDG (xxx = 300 to 340 W).



Product Service

CERTIFICATE

No. Z2 082429 0132 Rev. 17

Holder of Certificate: **Risen Energy Co.,Ltd**
Meilin, Ninghai,
315609 Ningbo, Zhejiang
PEOPLE'S REPUBLIC OF CHINA

Certification Mark:



Product: **Crystalline Silicon Terrestrial Photovoltaic (PV) Modules**
Mono-Crystalline Silicon Photovoltaic Module

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed on the product. It is not permitted to alter the certification mark in any way. In addition, the certification holder must not transfer the certificate to third parties. This certificate is valid until the listed date, unless it is cancelled earlier. All applicable requirements of the testing and certification regulations of TÜV SÜD Group have to be complied. For details see: www.tuvsud.com/ps-cert

Test report no.: 704061704304-18

Valid until: 2026-07-20

Date, 2021-07-26

(Zhulin Zhang)

CERTIFICATE

No. Z2 082429 0132 Rev. 17

Model(s):

RSM72-6-xxxMDG, xxx=315 to 385 in step of 5
 RSM60-6-xxxMDG, xxx=265 to 320 in step of 5
 RSM144-6-xxxMDG, xxx=350 to 415 in step of 5
 RSM132-6-xxxMDG, xxx=320 to 380 in step of 5
 RSM120-6-xxxMDG, xxx=295 to 350 in step of 5
 RSM72-6-xxxBMDG, xxx=340 to 385 in step of 5
 RSM60-6-xxxBMDG, xxx=280 to 325 in step of 5
 RSM144-6-xxxBMDG, xxx=360 to 415 in step of 5
 RSM132-6-xxxBMDG, xxx=330 to 380 in step of 5
 RSM120-6-xxxBMDG, xxx=300 to 350 in step of 5
 RSM156-6-xxxBHDG, xxx=435 to 465 in step of 5
 RSM144-6-xxxBHDG, xxx=400 to 430 in step of 5
 RSM132-6-xxxBHDG, xxx=365 to 390 in step of 5
 RSM120-6-xxxBHDG, xxx=330 to 360 in step of 5
 RSM144-7-xxxBMDG, xxx=425 to 455 in step of 5
 RSM132-7-xxxBMDG, xxx=390 to 420 in step of 5
 RSM120-7-xxxBMDG, xxx=355 to 380 in step of 5
 RSM144-6-xxxBMDG, xxx=425 to 455 in step of 5
 RSM132-6-xxxBMDG, xxx=390 to 420 in step of 5
 RSM120-6-xxxBMDG, xxx=355 to 380 in step of 5
 RSM150-8-xxxBMDG, xxx= 465 to 510 in step of 5
 RSM90-8-xxxBMDG, xxx= 285 to 300 in step of 5
 RSM144-9-xxxBMDG, xxx= 520 to 550 in step of 5
 RSM132-9-xxxBMDG, xxx= 480 to 505 in step of 5
 RSM120-9-xxxBMDG, xxx= 435 to 460 in step of 5
 RSM120-8-xxxBMDG, xxx= 560 to 610 in step of 5
 RSM110-8-xxxBMDG, xxx= 525 to 560 in step of 5
 RSM80-8-xxxBMDG, xxx= 380 to 405 in step of 5
 RSM132-8-xxxBMDG, xxx= 635 to 670 in step of 5
 RSM144-7-xxxBMDGZ, xxx=425 to 455 in step of 5
 RSM132-7-xxxBMDGZ, xxx=390 to 420 in step of 5
 RSM120-7-xxxBMDGZ, xxx=355 to 380 in step of 5
 RSM144-6-xxxHDGB, xxx=400 to 430 in step of 5
 RSM132-6-xxxHDGB, xxx=365 to 390 in step of 5
 RSM120-6-xxxHDGB, xxx=330 to 360 in step of 5
 xxx is standing for rated output power at STC

Parameters:

Construction:	Frameless or framed, double glass with Junction box, Cable and Connectors.
Safety Class:	Class II
Maximum System Voltage:	1500 V DC
Fire Safety Class:	Class A or Class C according to UL790
Test Laboratory:	Yangzhou Opto-Electrical Products Testing Institute, No. 10 West Kaifa Road, Yangzhou, 225009 Jiangsu, P. R. China.



CERTIFICATE

No. Z2 082429 0132 Rev. 17

**Tested
according to:**

IEC 61215-1:2016
IEC 61215-1-1:2016
IEC 61215-2:2016
IEC 61730-1:2016
IEC 61730-2:2016
EN 61215-1:2016
EN 61215-1-1:2016
EN 61215-2:2017
EN IEC 61730-1:2018
EN IEC 61730-1:2018/AC:2018-06
EN IEC 61730-2:2018
EN IEC 61730-2:2018/AC:2018-06



Certificate of Compliance

Certificate: 70215816

Master Contract: 259668

Project: 80065070

Date Issued: 2021-05-06

Issued to: Risen Energy Co., Ltd.
No. 23 Middle Xingke Road,
Ninghai, Ningbo, Zhejiang, 315609
P.R. CHINA
Attention: Suber Yang

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only



Issued by: *Simon Shen*
Simon Shen

PRODUCTS

CLASS - C531110 - POWER SUPPLIES-Photovoltaic Modules and Panels

CLASS - C531190 - POWER SUPPLIES-Photovoltaic Modules and Panels - Certified to US Standards

Photovoltaic modules with maximum DC system voltage of 1500 V, Safety Class II.

Model series:

RSM72-6-xxxP (xxx = 305 to 355 W),
RSM72-6-xxxM (xxx = 370 to 410 W),
RSM60-6-xxxM (xxx = 305 to 345 W),
RSM60-6-xxxP (xxx = 260 to 295 W),
RSM156-6-xxxM (xxx = 410 to 455 W),
RSM144-6-xxxM (xxx = 350 to 415 W),
RSM132-6-xxxM (xxx = 320 to 380 W),
RSM120-6-xxxM (xxx = 295 to 350 W),
RSM120-7-xxxM (xxx = 355 to 375 W),
RSM144-7-xxxM (xxx = 425 to 450 W),
RSM150-8-xxxM (xxx = 465 to 515 W),
RSM144-9-xxxM (xxx = 525 to 555 W),
RSM132-9-xxxM (xxx = 485 to 510 W),
RSM120-9-xxxM (xxx = 440 to 465 W).



Certificate: 70215816
Project: 80065070

Master Contract: 259668
Date Issued: 2021-05-06

Model	Open Circuit Voltage at STC (V dc)	Short Circuit Current at STC (A dc)	Rated Voltage at STC (V dc)	Rated Current at STC (A dc)	Rated Maximum Power at STC (Watts)	Maxium overcurrent protection rating (A)
RSM72-6-xxxP (xxx = 305 to 355 W)						
RSM72-6-305P	44.80	9.00	36.10	8.45	305	20
RSM72-6-310P	45.10	9.05	36.50	8.50	310	20
RSM72-6-315P	45.10	9.00	37.10	8.50	315	20
RSM72-6-320P	45.30	9.10	37.25	8.60	320	20
RSM72-6-325P	45.50	9.20	37.40	8.70	325	20
RSM72-6-330P	45.70	9.30	37.55	8.80	330	20
RSM72-6-335P	45.90	9.40	37.65	8.90	335	20
RSM72-6-340P	46.10	9.50	37.80	9.00	340	20
RSM72-6-345P	46.30	9.60	37.95	9.10	345	20
RSM72-6-350P	46.50	9.70	38.10	9.20	350	20
RSM72-6-355P	46.70	9.80	38.20	9.30	355	20
RSM72-6-xxxM (xxx = 370 W to 410 W)						
RSM72-6-370M	48.15	9.90	39.60	9.35	370	20
RSM72-6-375M	48.60	9.95	39.95	9.40	375	20
RSM72-6-380M	48.95	10.00	40.25	9.45	380	20
RSM72-6-385M	49.35	10.05	40.55	9.50	385	20
RSM72-6-390M	49.70	10.10	40.85	9.55	390	20
RSM72-6-395M	50.10	10.15	41.20	9.60	395	20
RSM72-6-400M	50.45	10.20	41.50	9.65	400	20
RSM72-6-405M	50.85	10.25	41.80	9.70	405	20
RSM72-6-410M	51.20	10.30	42.10	9.75	410	20
RSM60-6-xxxP (xxx = 260 to 295 W)						
RSM60-6-260P	37.60	9.00	30.60	8.50	260	20
RSM60-6-265P	37.80	9.10	30.85	8.60	265	20
RSM60-6-270P	37.90	9.20	31.05	8.70	270	20
RSM60-6-275P	38.10	9.30	31.25	8.80	275	20
RSM60-6-280P	38.30	9.40	31.50	8.90	280	20
RSM60-6-285P	38.40	9.50	31.70	9.00	285	20
RSM60-6-290P	38.60	9.60	31.90	9.10	290	20
RSM60-6-295P	38.80	9.70	32.10	9.20	295	20
RSM60-6-xxxM (xxx = 305 to 345 W)						
RSM60-6-305M	39.40	9.80	33.00	9.25	305	20
RSM60-6-310M	39.80	9.85	33.35	9.30	310	20
RSM60-6-315M	40.10	9.90	33.70	9.35	315	20
RSM60-6-320M	40.50	9.95	34.05	9.40	320	20
RSM60-6-325M	40.80	10.00	34.40	9.45	325	20
RSM60-6-330M	41.10	10.05	34.75	9.50	330	20
RSM60-6-335M	41.40	10.10	35.10	9.55	335	20



Certificate: 70215816
Project: 80065070

Master Contract: 259668
Date Issued: 2021-05-06

Model	Open Circuit Voltage at STC (V dc)	Short Circuit Current at STC (A dc)	Rated Voltage at STC (V dc)	Rated Current at STC (A dc)	Rated Maximum Power at STC (Watts)	Maxium overcurrent protection rating (A)
RSM60-6-340M	41.95	10.15	35.45	9.60	340	20
RSM60-6-345M	42.35	10.20	35.80	9.65	345	20
RSM156-6-xxxM (xxx = 410 to 455 W)						
RSM156-6-410M	51.78	10.10	43.20	9.50	410	20
RSM156-6-415M	51.93	10.20	43.30	9.60	415	20
RSM156-6-420M	52.08	10.29	43.40	9.69	420	20
RSM156-6-425M	52.23	10.38	43.50	9.78	425	20
RSM156-6-430M	52.38	10.47	43.60	9.87	430	20
RSM156-6-435M	52.50	10.57	43.70	9.97	435	20
RSM156-6-440M	52.62	10.67	43.80	10.06	440	20
RSM156-6-445M	52.70	10.77	43.90	10.15	445	20
RSM156-6-450M	52.82	10.87	44.00	10.24	450	20
RSM156-6-455M	52.92	10.97	44.10	10.32	455	20
RSM144-6-xxxM (xxx = 350 to 415 W)						
RSM144-6-350M	47.20	9.70	38.60	9.07	350	20
RSM144-6-355M	47.15	9.60	39.50	9.00	355	20
RSM144-6-360M	47.30	9.70	39.60	9.10	360	20
RSM144-6-365M	47.45	9.80	39.70	9.20	365	20
RSM144-6-370M	47.60	9.90	39.80	9.30	370	20
RSM144-6-375M	47.75	10.00	39.90	9.40	375	20
RSM144-6-380M	48.00	10.10	40.05	9.50	380	20
RSM144-6-385M	48.15	10.20	40.15	9.60	385	20
RSM144-6-390M	48.30	10.30	40.25	9.70	390	20
RSM144-6-395M	48.45	10.40	40.35	9.80	395	20
RSM144-6-400M	48.60	10.50	40.45	9.90	400	20
RSM144-6-405M	48.75	10.60	40.55	10.00	405	20
RSM144-6-410M	48.90	10.70	40.65	10.10	410	20
RSM144-6-415M	49.00	10.80	40.70	10.20	415	20
RSM132-6-xxxM (xxx = 320 to 380 W)						
RSM132-6-320M	43.20	9.50	36.60	8.90	320	20
RSM132-6-325M	43.30	9.60	36.15	9.00	325	20
RSM132-6-330M	43.40	9.70	36.30	9.10	330	20
RSM132-6-335M	43.50	9.80	36.45	9.20	335	20
RSM132-6-340M	43.60	9.90	36.60	9.30	340	20
RSM132-6-345M	43.70	10.00	36.75	9.40	345	20
RSM132-6-350M	43.80	10.10	36.90	9.50	350	20
RSM132-6-355M	43.90	10.19	37.05	9.60	355	20
RSM132-6-360M	44.00	10.29	37.20	9.69	360	20
RSM132-6-365M	44.10	10.38	37.35	9.79	365	20



Certificate: 70215816
Project: 80065070

Master Contract: 259668
Date Issued: 2021-05-06

Model	Open Circuit Voltage at STC (V dc)	Short Circuit Current at STC (A dc)	Rated Voltage at STC (V dc)	Rated Current at STC (A dc)	Rated Maximum Power at STC (Watts)	Maxium overcurrent protection rating (A)
RSM132-6-370M	44.20	10.48	37.50	9.88	370	20
RSM132-6-375M	44.30	10.58	37.65	9.97	375	20
RSM132-6-380M	44.40	10.68	37.80	10.07	380	20
RSM120-6-xxxM (xxx = 295 to 350 W)						
RSM120-6-295M	39.30	9.60	32.80	9.00	295	20
RSM120-6-300M	39.40	9.70	33.00	9.10	300	20
RSM120-6-305M	39.50	9.80	33.20	9.20	305	20
RSM120-6-310M	39.70	9.90	33.35	9.30	310	20
RSM120-6-315M	39.80	10.00	33.55	9.40	315	20
RSM120-6-320M	40.00	10.10	33.70	9.50	320	20
RSM120-6-325M	40.10	10.20	33.90	9.60	325	20
RSM120-6-330M	40.30	10.30	34.05	9.70	330	20
RSM120-6-335M	40.40	10.40	34.20	9.80	335	20
RSM120-6-340M	40.50	10.50	34.40	9.90	340	20
RSM120-6-345M	40.60	10.60	34.55	10.00	345	20
RSM120-6-350M	40.70	10.70	34.70	10.10	350	20
RSM144-7-xxxM (xxx = 425 to 450 W)						
RSM144-7-425M	49.20	11.00	40.90	10.40	425	20
RSM144-7-430M	49.30	11.10	40.96	10.50	430	20
RSM144-7-435M	49.40	11.20	41.05	10.60	435	20
RSM144-7-440M	49.50	11.30	41.13	10.70	440	20
RSM144-7-445M	49.60	11.40	41.25	10.80	445	20
RSM144-7-450M	49.70	11.50	41.30	10.90	450	20
RSM120-7-xxxM (xxx = 355 to 375 W)						
RSM120-7-355M	40.60	11.30	33.20	10.70	355	20
RSM120-7-360M	40.70	11.42	33.35	10.80	360	20
RSM120-7-365M	40.80	11.54	33.50	10.90	365	20
RSM120-7-370M	40.90	11.66	33.65	11.00	370	20
RSM120-7-375M	41.00	11.78	33.80	11.10	375	20
RSM150-8-xxxM (xxx = 465 to 515 W)						
RSM150-8-465M	49.47	11.97	41.34	11.26	465	20
RSM150-8-470M	49.69	12.04	41.56	11.32	470	20
RSM150-8-475M	49.91	12.11	41.78	11.38	475	20
RSM150-8-480M	50.13	12.18	42.00	11.44	480	20
RSM150-8-485M	50.35	12.25	42.22	11.50	485	20
RSM150-8-490M	50.57	12.32	42.44	11.56	490	20
RSM150-8-495M	50.79	12.39	42.66	11.62	495	20
RSM150-8-500M	51.01	12.46	42.88	11.68	500	20
RSM150-8-505M	51.23	12.53	43.10	11.74	505	20



Certificate: 70215816
Project: 80065070

Master Contract: 259668
Date Issued: 2021-05-06

Model	Open Circuit Voltage at STC (V dc)	Short Circuit Current at STC (A dc)	Rated Voltage at STC (V dc)	Rated Current at STC (A dc)	Rated Maximum Power at STC (Watts)	Maxium overcurrent protection rating (A)
RSM150-8-510M	51.45	12.60	43.32	11.80	510	20
RSM150-8-515M	51.67	12.67	43.54	11.86	515	20
RSM144-9-xxxM (xxx = 525 to 555 W)						
RSM144-9-525M	49.30	13.45	41.65	12.61	525	25
RSM144-9-530M	49.40	13.55	41.75	12.70	530	25
RSM144-9-535M	49.50	13.64	41.87	12.79	535	25
RSM144-9-540M	49.60	13.74	41.99	12.87	540	25
RSM144-9-545M	49.70	13.84	42.11	12.96	545	25
RSM144-9-550M	49.80	13.94	42.20	13.04	550	25
RSM144-9-555M	49.91	14.04	42.29	13.13	555	25
RSM132-9-xxxM (xxx = 485 to 510 W)						
RSM132-9-485M	45.40	13.59	38.20	12.70	485	25
RSM132-9-490M	45.50	13.69	38.30	12.80	490	25
RSM132-9-495M	45.60	13.79	38.40	12.90	495	25
RSM132-9-500M	45.70	13.89	38.51	12.99	500	25
RSM132-9-505M	45.80	13.99	38.62	13.08	505	25
RSM132-9-510M	45.90	14.09	38.73	13.17	510	25
RSM120-9-xxxM (xxx = 440 to 465 W)						
RSM120-9-440M	40.40	13.57	34.79	12.65	440	25
RSM120-9-445M	40.50	13.68	34.91	12.75	445	25
RSM120-9-450M	40.60	13.78	35.05	12.85	450	25
RSM120-9-455M	40.70	13.88	35.15	12.95	455	25
RSM120-9-460M	40.80	13.98	35.25	13.05	460	25
RSM120-9-465M	40.91	14.04	35.35	13.12	465	25

Note:

1. All electrical data are shown as relative to standard test conditions (STC) (1000 W/m², (25 ± 2) °C, AM 1.5 according to IEC 60904-3).
2. The manufacturer declared tolerance of Open-circuit voltage, Short-circuit current, Maximum power is ±3%, ±4%, ±3% respectively.
3. Maximum over-current protection rating is 20A or 25A.
4. The operating ambient temperature of these devices may exceed 40 °C at full load for all wire sizes if it is determined suitable in the field use application.



Certificate: 70215816
Project: 80065070

Master Contract: 259668
Date Issued: 2021-05-06

APPLICABLE REQUIREMENTS

CSA-C22.2 No. 61730-1:19	Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction, 2019-12
CSA-C22.2 No. 61730-2:19	Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing, 2019-12
UL 61730-1 First Edition	Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction, 2017-12-04, revision date 2020-04-30
UL 61730-2 First Edition	Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing, 2017-12-04, revision date 2020-04-30



Supplement to Certificate of Compliance

Certificate: 70215816

Master Contract: 259668

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80065070	2021-5-6	Update report 70215816 to add RSM144-9-xxxM, RSM132-9-xxxM, RSM120-9-xxxM new model series, add new Xinyi superstrate glass, add RSTDB182S (10BB) type 182mm*91mm new cell, add WTO-PV112B type new flux, add HT906Z type new adhesive for junction box and frame, add 5299W-S type new potting for PV-SY017 type junction box.
80066676	2021-3-10	Update report 70215816 to add new 9BB bifacial 166mm*83mm cell M166-9BB-Bifacial-Half-PERC from Talesun Technologies (Thailand) Co., Ltd.
80059943	2021-1-21	Update report 70215816 to add RSM150-8-xxxM new model series, add M2109BPERCBP type 210mm*70mm new cell, update 20A rating for PV-SY017 junction box, add MH-3668 type new adhesive for junction box and frame, add MH-3667 type new potting for junction box.
80050838	2020-12-10	Update report 70215816 to add new RSM144-7-xxxM and RSM120-7-xxxM model series, add RSTDB166S type 166mm*83mm new cell, add TS-688 type new adhesive for junction box and frame.
80035471	2020-09-23	Update report 70215816 to add new RSM156-6-xxxM model series, add new RSTDB156S type cell, new PV358S type backsheets, new SV-15296P/ SV-15297P type EVA, new Flat Glass Group Co., Ltd. glass manufacturer, new Φ 0.35 specification for interconnect ribbon, new SF105 type Flux, new JS-1184A / JS1184B type potting for junction box, new 6005-2 T6 material for frame, new JS-606 type adhesive for junction box and frame.
80037733	2020-07-21	Update report 70215816 to add new cell PM45BF22B2 from GINTECH (THAILAND) CO., LTD.
80037734	2020-03-30	Update report to extend the power rating for RSM72-6-xxxM model series to 410W.
80027014	2020-03-12	Update report to add new cell T1S-00000UD4B manufactured by TAINERGY TECH CO., LTD.
80027013	2020-03-12	Update report to add new cell T1S-00000UB4B manufactured by TAINERGY TECH CO., LTD, add new module series RSM72-6-xxxM, RSM60-6-xxxM, extend the power rating for RSM144-6-xxxM, RSM132-6-xxxM, RSM120-6-xxxM and update the standard from CAN/CSA-C22.2 No. 61730-1:11 to the latest standard CAN/CSA-C22.2 No. 61730-1:19.
80022610	2019-10-30	Update report for factory "Vietnam Sunergy Joint Stock Company".



Certificate: 70215816
Project: 80065070

Master Contract: 259668
Date Issued: 2021-05-06

80011115	2019-09-05	Update report to add two alternative cells: T1M- manufactured by VIETENERGY CO., LTD. and NP6W manufactured by GINTECH (THAILAND) LIMITED.
70215816	2019-07-02	CSA C/US Certification for Photovoltaic (PV) Modules, Model Series RSM72-6-xxxP (xxx = 305 to 355 W), RSM60-6-xxxP (xxx = 260 to 295 W), RSM144-6-xxxM (xxx = 350 to 405 W), RSM132-6-xxxM (xxx = 320 to 370 W), and RSM120-6-xxxM (xxx = 295 to 340 W).



Product Service

CERTIFICATE

No. Z2 082429 0145 Rev. 22

Holder of Certificate: **Risen Energy Co.,Ltd**
Meilin, Ninghai,
315609 Ningbo, Zhejiang
PEOPLE'S REPUBLIC OF CHINA

Certification Mark:



Product: **Crystalline Silicon Terrestrial Photovoltaic (PV) Modules**
Mono-Crystalline Silicon Photovoltaic Module

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed on the product. It is not permitted to alter the certification mark in any way. In addition, the certification holder must not transfer the certificate to third parties. This certificate is valid until the listed date, unless it is cancelled earlier. All applicable requirements of the testing and certification regulations of TÜV SÜD Group have to be complied. For details see: www.tuvsud.com/ps-cert

Test report no.: 704061704311-26

Valid until: 2026-07-21

Date, 2021-07-23

(Zhulin Zhang)

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ CERTIFICADO ◆ CERTIFICAT

CERTIFICATE

No. Z2 082429 0145 Rev. 22

Model(s):

RSM72-6-xxxM, xxx=330 to 405 in step of 5,
 RSM60-6-xxxM, xxx=275 to 340 in step of 5,
 RSM156-6-xxxM, xxx=410 to 455 in step of 5,
 RSM156-6-xxxMB, xxx=410 to 455 in step of 5,
 RSM144-6-xxxM, xxx=350 to 420 in step of 5,
 RSM144-6-xxxMB, xxx=350 to 420 in step of 5,
 RSM144-6-xxxM, xxx=425 to 450 in step of 5,
 RSM144-7-xxxM, xxx=425 to 465 in step of 5,
 RSM144-7-xxxMB, xxx=425 to 465 in step of 5,
 RSM132-6-xxxM, xxx=320 to 385 in step of 5,
 RSM132-6-xxxMB, xxx=320 to 385 in step of 5,
 RSM120-6-xxxM, xxx=295 to 350 in step of 5,
 RSM120-6-xxxMB, xxx=295 to 350 in step of 5,
 RSM120-6-xxxM, xxx=355 to 375 in step of 5,
 RSM120-7-xxxM, xxx=355 to 390 in step of 5,
 RSM120-7-xxxMB, xxx=355 to 390 in step of 5,
 RSM150-8-xxxM, xxx=465 to 515 in step of 5,
 RSM150-8-xxxMB, xxx=465 to 515 in step of 5,
 RSM40-8-xxxM, xxx=385 to 415 in step of 5,
 RSM40-8-xxxMB, xxx=385 to 415 in step of 5,
 RSM144-9-xxxM, xxx=525 to 555 in step of 5,
 RSM144-9-xxxMB, xxx=525 to 555 in step of 5,
 RSM132-9-xxxM, xxx=485 to 510 in step of 5,
 RSM132-9-xxxMB, xxx=485 to 510 in step of 5,
 RSM120-9-xxxM, xxx=440 to 465 in step of 5,
 RSM120-9-xxxMB, xxx=440 to 465 in step of 5,
 RSM120-8-xxxM, xxx=575 to 610 in step of 5,
 RSM120-8-xxxMB, xxx=575 to 610 in step of 5,
 RSM110-8-xxxM, xxx=525 to 560 in step of 5,
 RSM110-8-xxxMB, xxx=525 to 560 in step of 5,
 RSM156-6-xxxBMTG, xxx=410 to 455 in step of 5,
 RSM144-6-xxxBMTG, xxx=350 to 420 in step of 5,
 RSM132-6-xxxBMTG, xxx=320 to 385 in step of 5,
 RSM120-6-xxxBMTG, xxx=295 to 350 in step of 5,
 RSM120-6-xxxBMTG, xxx=355 to 375 in step of 5,
 RSM150-8-xxxBMTG, xxx=465 to 515 in step of 5,
 RSM144-9-xxxBMTG, xxx=525 to 555 in step of 5,
 RSM132-9-xxxBMTG, xxx=485 to 510 in step of 5,
 RSM120-9-xxxBMTG, xxx=440 to 465 in step of 5,
 RSM120-8-xxxBMTG, xxx=575 to 610 in step of 5,
 RSM110-8-xxxBMTG, xxx=525 to 560 in step of 5,
 RSM144-6-xxxBMTG, xxx=425 to 450 in step of 5,
 RSM144-7-xxxBMTG, xxx=425 to 465 in step of 5,
 RSM120-7-xxxBMTG, xxx=355 to 390 in step of 5,
 RSM40-8-xxxBMTG, xxx= 385 to 415 in step of 5,
 RSM132-8-xxxM, xxx=635 to 670 in step of 5,
 RSM132-8-xxxMB, xxx=635 to 670 in step of 5,
 RSM132-8-xxxBMTG, xxx=635 to 670 in step of 5
 xxx is standing for rated output power at STC



CERTIFICATE

No. Z2 082429 0145 Rev. 22

Parameters:

Construction:	Framed, with Junction box, Cable and Connectors.
Safety Class:	Class II
Maximum System Voltage:	1500V DC
Fire Safety Class:	Class C according to UL790
Test Laboratory:	Yangzhou Opto-Electrical Products Testing Institute, No. 10 West Kaifa Road, Yangzhou, 225009 Jiangsu, P. R. China.

Tested according to:

IEC 61215-1:2016
 IEC 61215-1-1:2016
 IEC 61215-2:2016
 IEC 61730-1:2016
 IEC 61730-2:2016
 EN 61215-1:2016
 EN 61215-1-1:2016
 EN 61215-2:2017
 EN IEC 61730-1:2018
 EN IEC 61730-1:2018/AC:2018-06
 EN IEC 61730-2:2018
 EN IEC 61730-2:2018/AC:2018-06