

Technical Report No.: 704061704311-31A2

Date: 2023-02-10

Client: Risen Energy Co., Ltd
Meilin, Ninghai, 315609 Ningbo, Zhejiang, PEOPLE'S REPUBLIC OF CHINA.

Factory: Risen Energy (CHANGZHOU) Co., Ltd (101449)
No.1, Shuinan Road, Zhixi Industrial Park, Jintan District 213251
Changzhou City PEOPLE'S REPUBLIC OF CHINA

Risen Energy (YIWU) Co., Ltd.(106291)
No. 599 Sufu Road, Suxi Town, Yiwu City, Zhejiang Province,
322000, PEOPLE'S REPUBLIC OF CHINA

Risen Energy (Anhui) Co., Ltd.(113068)
No.325, East Tongling Road Economic and Technological
Development Zone 239000 Chuzhou City, Anhui Province
PEOPLE'S REPUBLIC OF CHINA

Risen Energy (Ningbo) Co.,Ltd (115158)
No.1 Middle Xingke Road, Ninghai, 315609,
Ningbo,Zhejiang,P.R.China.

RISEN SOLAR TECHNOLOGY SDN. BHD.(115943)
No.3, Jalan Hi-Tech 14, Zon Industri Fasa 4, Kulim
Hi-Tech Park, 09090 Kulim, Kedah Malaysia.

Risen Energy (Baotou) Co., Ltd. (119117)
Baotou Jinshan Industrial Park, Guyang County, Baotou City
014200 Inner Mongolia Autonomous Region PEOPLE'S REPUBLIC
OF CHINA

Test object: Product: Photovoltaic modules
Model: See clause 1.4

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

EN IEC 61730-2:2018/AC:2018-06

- Purpose of examination:
- Testing (visual / partial) for compliance with specified requirements to assess conformity with the essential safety and health requirements of the following European Directives: Low Voltage Directive 2014/35/EU relating to electrical equipment designed for use within certain voltage limits
 - Testing and evaluation (visual / partial) according to the test specification

Test result: The test results show that the presented product is in compliance with the above listed test specifications.

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1. Description of the test object

1.1 Picture(s)

N/A

1.2 Function

N/A

Manufacturer's specification for intended use:

The PV modules for electricity generation systems with max. voltage of 1500 V DC

Manufacturer's specification for predictive use:

N/A

1.3 Consideration of the foreseeable use

- Not applicable
- Covered through the applied standard
- Covered by the following comment*
- Covered by attached risk analysis

1.4 Technical Data

Model

: 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 420 in step of 5,
RSM40-8-xxxMB, xxx=385 to 420 in step of 5,
RSM144-9-xxxM, xxx=525 to 560 in step of 5,
RSM144-9-xxxMB, xxx=525 to 560 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 615 in step of 5,
RSM120-8-xxxMB, xxx=575 to 615 in step of 5,
RSM110-8-xxxM, xxx=525 to 565 in step of 5,
RSM110-8-xxxMB, xxx=525 to 565 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 560 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 615 in step of 5,
RSM110-8-xxxBMTG, xxx=525 to 565 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 420 in step of 5,

RSM132-8-xxxM,xxx=635 to 675 in step of 5,
RSM132-8-xxxMB,xxx=635 to 675 in step of 5,
RSM132-8-xxxBMTG,xxx=635 to 675 in step of 5,
RSM130-8-xxxM, xxx= 430 to 455 in step of 5,
RSM130-8-xxxMB, xxx= 430 to 455 in step of 5.
RSM130-8-xxxN, xxx= 440 to 460 in step of 5,
RSM130-8-xxxNB, xxx=440 to 460 in step of 5,
RSM130-8-xxxBNTG, xxx=440 to 460 in step of 5,
RSM40-8-xxxN, xxx=405 to 425 in step of 5,
RSM40-8-xxxNB, xxx=405 to 425 in step of 5,
RSM40-8-xxxBNTG, xxx=405 to 425 in step of 5
RSM144-9-xxxN, xxx= 555 to 590 in step of 5
RSM120-9-xxxN, xxx= 460 to 490 in step of 5
RSM108-9-xxxN, xxx= 415 to 440 in step of 5
RSM144-10-xxxN, xxx= 575 to 605 in step of 5
RSM120-10-xxxN, xxx= 480 to 505 in step of 5
RSM108-10-xxxN, xxx= 430 to 455 in step of 5
xxx is standing for rated output power at STC

Rated output Power at STC : Same as above
Max. system voltage : 1500 V DC

2. Order

2.1 Date of Purchase Order, Customer's Reference

The order dated 2022-10-18

2.2 Test Sample(s)

- Reception date(s):
2022-11-12
- Location(s) of reception:
Changzhou HuaYang Inspection and Testing Technology Co., Ltd.
NO.8 Lanxiang Road, Wujin Economic Development Zone,Changzhou, Jiangsu,
China.
- Condition of test sample(s):
In good condition

2.3 Date(s) of Testing

2022-11-14/2023-01-10

2.4 Location(s) of Testing

Changzhou HuaYang Inspection and Testing Technology Co., Ltd.
 NO.8 Lanxiang Road, Wujin Economic Development Zone, Changzhou, Jiangsu, China.

2.5 Points of Non-Compliance or Exceptions of the Test Procedure

- N/A

3. Test Results

- “Decision rule according to IEC Guide 115:2021, clause 4.4.3, 4.5.1 was applied.”
- “Decision rule (based on ILAC-G8) for an upper specification limit (A lower limit or specification with an up-per and a lower limit is treated similarly.):
 - Compliance with the requirement: If a specification limit is not breached by a measurement result plus the expanded uncertainty with a 95% coverage probability, then compliance with the specification will be stated (e.g. Pass).

3.1 Positive Test Results

Test specification(s)	Report no. / Rev. No.	Date	Remark
Electrical safety:	704061704311-31A2	2023-02-10	Refer Clause 4.1
Mechanical safety:	704061704311-31A2	2023-02-10	Refer Clause 4.1

3.2 Points of Non-Compliance according to the test specification

- None

4. Remarks

4.1 General

Based on previous report: 704061704311-31A1,
Remove RSM132-8-xxxM; RSM132-8-xxxMB; RSM132-8-xxxBMTG series aluminum alloy
module middle cross beam (Middle stiffener).

Following tests according to IEC 61215-1:2016, IEC 61215-1-1:2016, IEC 61215-2:2016 were
conducted on representative model RSM132-8-665M.

Repeat for IEC 61215:

- MQT 13 Damp heat test, 1000 hours
- MQT 16 Static mechanical load test

Including initial and after control measurement

Following test according IEC 61730-2:2016 were conducted on representative model
RSM132-8-665M.

Repeat for IEC 61730:

- MST 13 Continuity test of equipotential bonding
- MST 06 Sharp edge test
- MST 32 Module breakage test

Including initial and after control measurement

Requirements according to IEC 61730-1:2016 were verified.

The user manual has been examined according to the minimum requirements described in the
product standard. The manufacturer is responsible for the accuracy of further particulars as well
as of the composition and layout.

4.2 Factory surveillance cycle

Your production facility is currently on a

- Annual (12 month)
- Bi-Annual (6 month)
- Quarterly (3 month)
-

surveillance cycle.

4.3 Additional information for routine tests to be performed by the factory(ies)

Routine tests for electrical appliances / equipment:

Routine tests requirements for production are described in 70.197.22.101449.05, 70.197.22.106291.04, 70.197.22.113068.02, 70.197.22.115158.02,70.197.22.115943.01, 70.197.22.119117.01.

5. Documentation

File	File name	Date
Data form (CDF):	704061704311-31A2 CDF	2023-02-10
Photo documentation:	Attachment No.1 of 704061704311-31A2 Photos	2023-02-10
Installation manual:	Version: A4 [2022]	2023-02-10

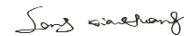
6. Summary

“The test specifications are met”

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch

Tested by:

Xiaoguang Song
Printed name,function & signature



Approved by:

Gang Huang
Printed name,function & signature

