



URS PRODUCTS AND TESTING PRIVATE LIMITED

A-29, Sector-5, Noida-201301
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CIN NO U21014UP1987PTC008956



TC-6468

SUMMARY OF TEST REPORT

TEST REPORT NO: SC24SPI01118_1

DATE: 16/09/2024

(Total Number of Pages in Test Report: 53)

TEST FORMAT AS PER IS/IEC 61730-2:2004 (First Edition) +A1:2017

- Name of the Manufacturer: Icon Solar En Power Technologies Private Limited.**
- Product: Crystalline silicon terrestrial photovoltaic (PV) modules (Mono-crystalline).**
- Model Tested: ISEN600-Bi**
Series Model:
156 Half cut cell family with system voltage 1500V
 ISEN595-Bi, ISEN590-Bi, ISEN585-Bi, ISEN580-Bi, ISEN575-Bi, ISEN570-Bi, ISEN565-Bi, ISEN560-Bi,
144 Half cut cell family with system voltage 1500V
 ISEN555-Bi, ISEN550-Bi, ISEN545-Bi, ISEN540-Bi, ISEN535-Bi, ISEN530-Bi, ISEN525-Bi, ISEN520-Bi,
132 Half cut cell family with system voltage 1500V
 ISEN505-Bi, ISEN500-Bi, ISEN495-Bi, ISEN490-Bi, ISEN485-Bi, ISEN480-Bi,
120 Half cut cell family with system voltage 1500V
 ISEN460-Bi, ISEN455-Bi, ISEN450-Bi, ISEN445-Bi, ISEN440-Bi, ISEN435-Bi, ISEN430-Bi, ISEN425-Bi,
 ISEN420-Bi,
108 Half cut cell family with system voltage 1500V
 ISEN410-Bi, ISEN405-Bi, ISEN400-Bi, ISEN395-Bi, ISEN390-Bi, ISEN385-Bi, ISEN380-Bi
- Model differences provided (if applicable): Yes**
- Model differences verified as per MNRE Guidelines for series approval: Yes**

6. Test Results:

SL. NO.	TEST REQUIREMENT	CLAUSE	VERDICT
1	MST 01 – Visual inspection	10.1	P
2	MST 11 – Accessibility test	10.2	P
3	MST 12 – Cut susceptibility test	10.3	P
4	MST 13 – Ground continuity test	10.4	P
5	MST 14 – Impulse voltage test	10.5	P
6	MST 16 – Dielectric withstand test	10.6	P
7	MST 21 – Temperature test	10.7	P
8	MST 23 – Fire test	10.8	P



ULR-TC646824100007056F



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9	MST 25-Bypass diode thermal test	MST 25	P
10	MST 42-Robustness of terminations test	MST 42	P
11	MST 26 – Reverse current overload Test	10.9	P
12	MST 32 – Module breakage test	10.10	P
13	MST 17 – Wet leakage current test	MST 17	P
14	MST 22 – Hot-spot test	MST 22	P
15	MST 34 – Mechanical load test	MST 34	P
16	MST 51a – Thermal cycling test (TC200)	MST 51a	P
17	MST 51b – Thermal cycling test (TC50)	MST 51b	P
18	MST 52 – Humidity freeze test	MST 52	P
19	MST 53 – Damp heat test	MST 53	P
20	MST 54 – UV preconditioning test	MST 54	P
21	MST 15 – Partial discharge test	11.1	N/A
22	MST 33 – Conduit bending test	11.2	N/A
23	MST 44 –Terminal box knockout test	11.3	N/A

General Information:

1. The conformity certificates of components/parts wherever applicable are verified to ensure complete testing of products under test and details regarding harmonized IEC standards (where IEC standards are not available) are also provided in the list of components/parts (description of module construction) wherever applicable.

CONCLUSION:

1. Sample meets all relevant requirements of IS/IEC 61730-2:2004 (First Edition) + A1:2017

I, hereby undertake that the verdict stated in the test reports for all the test matches with the test results. The sample meets/~~does not meets~~ all relevant requirements stated above of IS/IEC61730-2:2004 (First Edition) + A1:2017.

Date: 16/09/2024



(Signature of Authorized person with Stamp)

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TEST REPORT IS/IEC 61730-2:2004 +A1:2017 PV Module Safety Qualification Part 2: Requirements for testing	
Report Reference No	SC24SPI01118_1
Date of issue	16/09/2024
Total number of pages	53
Testing Laboratory	URS PRODUCTS AND TESTING PRIVATE LIMITED
Address	A-29, Sector 5, Noida-201301, India
Applicant's name	Icon Solar En Power Technologies Private Limited.
Address	PH. NO.09, GRAM DIGHARI MANDIR HASAUD, TEH ARANG CHHATTISGARH RAIPUR 492001, CHHATTISHGARH, 492001
Test specification:	
Standard	IS/IEC 61730-2:2004+A1:2017
Test procedure	Compliance Report
Non-standard test method	N/A
Test Report Form No.	IS/IEC61730-2_V1.0
Test Report Form(s) Originator	BIS
Master TRF	Dated19.02.2018
Test item description	Crystalline Silicon Terrestrial Photovoltaic (PV) Modules (Si Wafer Based)
Trade Mark	
Manufacturer	Icon Solar En Power Technologies Private Limited.
Address	PH. NO.09, GRAM DIGHARI MANDIR HASAUD, TEH ARANG CHHATTISGARH RAIPUR 492001, CHHATTISHGARH, 492001
Model/Type reference	Model Tested: ISEN600-Bi Series Model: 156 Half cut cell family with system voltage 1500V ISEN595-Bi, ISEN590-Bi, ISEN585-Bi, ISEN580-Bi, ISEN575-Bi, ISEN570-Bi, ISEN565-Bi, ISEN560-Bi, 144 Half cut cell family with system voltage 1500V ISEN555-Bi, ISEN550-Bi, ISEN545-Bi, ISEN540-Bi, ISEN535-Bi, ISEN530-Bi, ISEN525-Bi, ISEN520-Bi, 132 Half cut cell family with system voltage 1500V ISEN505-Bi, ISEN500-Bi, ISEN495-Bi, ISEN490-Bi, ISEN485-Bi, ISEN480-Bi, 120 Half cut cell family with system voltage 1500V ISEN460-Bi, ISEN455-Bi, ISEN450-Bi, ISEN445-Bi, ISEN440-Bi, ISEN435-Bi, ISEN430-Bi, ISEN425-Bi, ISEN420-Bi, 108 Half cut cell family with system voltage 1500V ISEN410-Bi, ISEN405-Bi, ISEN400-Bi, ISEN395-Bi, ISEN390-Bi, ISEN385-Bi, ISEN380-Bi
Ratings	See copy of Marking label and General product information.
General disclaimer	The test results presented in this report relate only to the object tested.





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Testing procedure and testing location:		
<input checked="" type="checkbox"/> Testing Laboratory:	URS PRODUCTS AND TESTING PRIVATE LIMITED	
Testing location/ address.....:	A-29, Sector 5, Noida-201301, India	
Tested by (name + signature)	PUJA KUMARI Asst.Manager	
Approved by (name + signature): 	NILESH BALASAHEB ASWAR (Lab Manager)	
Issued by (name + signature)	Paras Singh (General Manager Technical)	





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List of Attachments (including a total number of pages in each attachment): 30 to 32– Photographs and Specification of PV modules

Summary of testing:

Tests performed (name of test and test clause):

10.1	MST 01 – Visual inspection
10.2	MST 11 – Accessibility test
10.3	MST 12 – Cut susceptibility test
10.4	MST 13 – Ground continuity test
10.5	MST 14 – Impulse voltage test
10.6	MST 16 – Dielectric withstand test
10.7	MST 21 – Temperature test
10.8	MST 23 – Fire test
MST 25	MST 25 – Bypass diode thermal test
MST 42	MST 42 – Robustness of terminations test
10.9	MST 26 – Reverse current overload test
10.10	MST 32 – Module breakage test
MST 17	MST 17 – Wet leakage current test
MST 22	MST 22 – Hot-spot test
MST 34	MST 34 – Mechanical load test
MST 51a	MST 51a – Thermal cycling test (TC200)
MST 51b	MST 51b – Thermal cycling test (TC50)
MST 52	MST 52 – Humidity freeze test
MST 53	MST 53 – Damp heat test
MST 54	MST 54 – UV preconditioning test

Testing location:

URS PRODUCTS AND TESTING PRIVATE LIMITED
A-29, Sector 5, Noida-201301, India

The product fulfils the requirements of IS/IEC 61730-2:2004 +A1:2017





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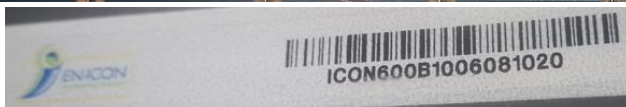
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Copy of Marking Plate

(Model Tested: ISEN600-Bi)

 ENICON <small>REPOWERING THE SUN</small> Icon Solar-En Power Technologies Private Limited Factory Address- PH No. D9, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771 4065755	Model No : ISEN600-Bi Pmax (W) : 600 Wp, ± 2% Voc (V) : 53.50 V Vm (V) : 45.20 V Isc (A) : 14.08 A Imax (A) : 13.29 A	Dimension (L x W x H) : 2464 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		



ICON SOLAR – EN POWER TECHNOLOGIES PVT. LTD.
YEAR OF MAKE : 2024 MODEL : ISEN600 – Bi
NOMINAL WATTAGE : 600Wp ± 2% MADE IN INDIA

Polarity marking on Junction Box



Polarity marking on Connectors



The marking plate above represents all models covered by this report. See "General product information" for electrical ratings for all models.





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(Series Model: ISEN595-Bi)



Icon Solar-En Power Technologies Private Limited
Factory Address- PH No. 09, Gram-Dighari, Mandir
Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India
Tel: +91 771-4065755

Model No : ISEN595-Bi
Pmax (W) : 595 Wp \pm 2%
Voc (V) : 53.40 V
Vm (V) : 45.00 V
Isc (A) : 14.01 A
Imax (A) : 13.23 A

Dimension (L x W x H) : 2464 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



WARNING
ELECTRICAL HAZARD

ELECTRICAL PARAMETER MEASURED AT STC

www.iconsolar-en.com

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
YEAR OF MAKE : 2024 MODEL : ISEN595-Bi
NOMINAL WATTAGE: 595 Wp \pm 2% MADE IN INDIA

ICON595B1006081001



(Series Model: ISEN590-Bi)



Icon Solar-En Power Technologies Private Limited
Factory Address- PH No. 09, Gram-Dighari, Mandir
Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India
Tel: +91 771-4065755

Model No : ISEN590-Bi
Pmax (W) : 590 Wp \pm 2%
Voc (V) : 53.30 V
Vm (V) : 44.80 V
Isc (A) : 13.94 A
Imax (A) : 13.18 A

Dimension (L x W x H) : 2464 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



WARNING
ELECTRICAL HAZARD

ELECTRICAL PARAMETER MEASURED AT STC

www.iconsolar-en.com

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
YEAR OF MAKE : 2024 MODEL : ISEN590-Bi
NOMINAL WATTAGE: 590 Wp \pm 2% MADE IN INDIA

ICON590B1006081001





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(Series Model: ISEN585-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN585-Bi Pmax (W) : 585 Wp ±2% Voc (V) : 53.20 V Vm (V) : 44.60 V Isc (A) : 13.87 A Imax (A) : 13.12 A	Dimension (L x W x H) : 2464 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		


ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN585-Bi
 NOMINAL WATTAGE: 585 Wp ± 2% MADE IN INDIA

 ICON585B1006081001


(Series Model: ISEN580-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN580-Bi Pmax (W) : 580 Wp ±2% Voc (V) : 53.10 V Vm (V) : 44.40 V Isc (A) : 13.79 A Imax (A) : 13.07 A	Dimension (L x W x H) : 2464 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN580-Bi
 NOMINAL WATTAGE: 580 Wp ± 2% MADE IN INDIA

 ICON580B1006081001






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(Series Model: ISEN575-Bi)



Icon Solar-En Power Technologies Private Limited
Factory Address- PH No. 09, Gram-Dighari, Mandir
Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India
Tel: +91 771-4065755

Model No : ISEN575-Bi
Pmax (W) : 575 Wp ±2%
Voc (V) : 53.00 V
Vm (V) : 44.20 V
Isc (A) : 13.69 A
Imax (A) : 13.02 A

Dimension (L x W x H) : 2464 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



WARNING
ELECTRICAL HAZARD

ELECTRICAL PARAMETER MEASURED AT STC

www.iconsolar-en.com

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
YEAR OF MAKE : 2024 MODEL : ISEN575-Bi
NOMINAL WATTAGE: 575 Wp ± 2% MADE IN INDIA

ICON575B1006081001

(Series Model: ISEN570-Bi)



Icon Solar-En Power Technologies Private Limited
Factory Address- PH No. 09, Gram-Dighari, Mandir
Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India
Tel: +91 771-4065755

Model No : ISEN570-Bi
Pmax (W) : 570 Wp ±2%
Voc (V) : 52.90 V
Vm (V) : 44.00 V
Isc (A) : 13.60 A
Imax (A) : 12.96 A

Dimension (L x W x H) : 2464 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



WARNING
ELECTRICAL HAZARD

ELECTRICAL PARAMETER MEASURED AT STC

www.iconsolar-en.com

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
YEAR OF MAKE : 2024 MODEL : ISEN570-Bi
NOMINAL WATTAGE: 570 Wp ± 2% MADE IN INDIA

ICON570B1006081001





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(Series Model: ISEN565-Bi)



 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN565-Bi Pmax (W) : 565 Wp ±2% Voc (V) : 52.80 V Vm (V) : 43.80 V Isc (A) : 13.55 A Imax (A) : 12.91 A	Dimension (L x W x H) : 2464 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN565-Bi
 NOMINAL WATTAGE: 565 Wp ± 2% MADE IN INDIA

ICON565B1006081001




(Series Model: ISEN560-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN560-Bi Pmax (W) : 560 Wp ±2% Voc (V) : 52.70 V Vm (V) : 43.60 V Isc (A) : 13.49 A Imax (A) : 12.85 A	Dimension (L x W x H) : 2464 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN560-Bi
 NOMINAL WATTAGE: 560 Wp ± 2% MADE IN INDIA

ICON560B1006081001






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(Series Model: ISEN555-Bi)



 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN555-Bi Pmax (W) : 555 Wp ±2% Voc (V) : 49.75 V Vm (V) : 42.12 V Isc (A) : 14.02 A Imax (A) : 13.18 A	Dimension (L x W x H) : 2278 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN555-Bi
 NOMINAL WATTAGE: 555 Wp ± 2% MADE IN INDIA

ICON555B1006081001




(Series Model: ISEN550-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN550-Bi Pmax (W) : 550 Wp ±2% Voc (V) : 49.60 V Vm (V) : 41.97 V Isc (A) : 13.98 A Imax (A) : 13.11 A	Dimension (L x W x H) : 2278 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN550-Bi
 NOMINAL WATTAGE: 550 Wp ± 2% MADE IN INDIA

ICON550B1006081001






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(Series Model: ISEN545-Bi)



 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN545-Bi Pmax (W) : 545 Wp ±2% Voc (V) : 49.45 V Vm (V) : 41.81 V Isc (A) : 13.93 A Imax (A) : 13.04 A	Dimension (L x W x H) : 2278 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN545-Bi
 NOMINAL WATTAGE: 545 Wp ± 2% MADE IN INDIA

ICON545B1006081001




(Series Model: ISEN540-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh India Tel: +91 771-4065755	Model No : ISEN540-Bi Pmax (W) : 540 Wp ±2% Voc (V) : 49.30 V Vm (V) : 41.65 V Isc (A) : 13.86 A Imax (A) : 12.97 A	Dimension (L x W x H) : 2278 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN540-Bi
 NOMINAL WATTAGE: 540 Wp ± 2% MADE IN INDIA

ICON540B1006081001






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(Series Model: ISEN535-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN535-Bi Pmax (W) : 535 Wp ±2% Voc (V) : 49.15 V Vm (V) : 41.47 V Isc (A) : 13.79 A Imax (A) : 12.91 A	Dimension (L x W x H) : 2278 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		


ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN535-Bi
 NOMINAL WATTAGE: 535 Wp ± 2% MADE IN INDIA

 ICON535B1006081001


(Series Model: ISEN530-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN530-Bi Pmax (W) : 530 Wp ±2% Voc (V) : 49.00 V Vm (V) : 41.32 V Isc (A) : 13.72 A Imax (A) : 12.83 A	Dimension (L x W x H) : 2278 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN530-Bi
 NOMINAL WATTAGE: 530 Wp ± 2% MADE IN INDIA

 ICON530B1006081001






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(Series Model: ISEN525-Bi)



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Factory Address- PH No. 09, Gram-Dighari, Mandir
Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India
Tel: +91 771-4065755

Model No : ISEN525-Bi
Pmax (W) : 525 Wp ±2%
Voc (V) : 48.85 V
Vm (V) : 41.16 V
Isc (A) : 13.65 A
Imax (A) : 12.76 A

Dimension (L x W x H) : 2278 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



WARNING
ELECTRICAL HAZARD

ELECTRICAL PARAMETER MEASURED AT STC

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ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
YEAR OF MAKE : 2024 MODEL : ISEN525-Bi
NOMINAL WATTAGE: 525 Wp ± 2% MADE IN INDIA

ICON525B1006081001



(Series Model: ISEN520-Bi)



Icon Solar-En Power Technologies Private Limited
Factory Address- PH No. 09, Gram-Dighari, Mandir
Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India
Tel: +91 771-4065755

Model No : ISEN520-Bi
Pmax (W) : 520 Wp ±2%
Voc (V) : 48.70 V
Vm (V) : 41.00 V
Isc (A) : 13.58 A
Imax (A) : 12.69 A

Dimension (L x W x H) : 2278 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



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ELECTRICAL HAZARD

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ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
YEAR OF MAKE : 2024 MODEL : ISEN520-Bi
NOMINAL WATTAGE: 520 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN505-Bi)



 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN505-Bi Pmax (W) : 505 Wp ±2% Voc (V) : 45.54 V Vm (V) : 38.53 V Isc (A) : 13.98 A Imax (A) : 13.11 A	Dimension (L x W x H) : 2094 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN505-Bi
 NOMINAL WATTAGE: 505 Wp ± 2% MADE IN INDIA

ICON505B1006081001




(Series Model: ISEN500-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN500-Bi Pmax (W) : 500 Wp ±2% Voc (V) : 45.39 V Vm (V) : 38.38 V Isc (A) : 13.93 A Imax (A) : 13.04 A	Dimension (L x W x H) : 2094 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN500-Bi
 NOMINAL WATTAGE: 500 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN495-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN495-Bi Pmax (W) : 495 Wp ±2% Voc (V) : 45.24 V Vm (V) : 38.22 V Isc (A) : 13.86 A Imax (A) : 12.97 A	Dimension (L x W x H) : 2094 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

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ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN495-Bi
 NOMINAL WATTAGE: 495 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN490-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN490-Bi Pmax (W) : 490 Wp ±2% Voc (V) : 45.09 V Vm (V) : 38.02 V Isc (A) : 13.79 A Imax (A) : 12.91 A	Dimension (L x W x H) : 2094 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

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ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN490-Bi
 NOMINAL WATTAGE: 490 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN485-Bi)



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Factory Address- PH No. 09, Gram-Dighari, Mandir
Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India
Tel: +91 771-4065755

Model No : ISEN485-Bi
Pmax (W) : 485 Wp ±2%
Voc (V) : 44.94 V
Vm (V) : 37.90 V
Isc (A) : 13.72 A
Imax (A) : 12.81 A

Dimension (L x W x H) : 2094 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



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ELECTRICAL PARAMETER MEASURED AT STC

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ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
YEAR OF MAKE : 2024 MODEL : ISEN485-Bi
NOMINAL WATTAGE: 485 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN480-Bi)



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Factory Address- PH No. 09, Gram-Dighari, Mandir
Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India
Tel: +91 771-4065755

Model No : ISEN480-Bi
Pmax (W) : 480 Wp ±2%
Voc (V) : 44.75 V
Vm (V) : 37.78 V
Isc (A) : 13.65 A
Imax (A) : 12.71 A

Dimension (L x W x H) : 2094 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



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ELECTRICAL PARAMETER MEASURED AT STC

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YEAR OF MAKE : 2024 MODEL : ISEN480-Bi
NOMINAL WATTAGE: 480 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN460-Bi)



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Factory Address- PH No. 09, Gram-Dighari, Mandir
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Tel: +91 771-4065755

Model No : ISEN460-Bi
Pmax (W) : 460 Wp ±2%
Voc (V) : 41.48 V
Vm (V) : 34.18 V
Isc (A) : 14.01 A
Imax (A) : 13.47 A

Dimension (L x W x H) : 1908 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



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ELECTRICAL PARAMETER MEASURED AT STC

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YEAR OF MAKE : 2024 MODEL : ISEN460-Bi
NOMINAL WATTAGE: 460 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN455-Bi)



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Factory Address- PH No. 09, Gram-Dighari, Mandir
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Model No : ISEN455-Bi
Pmax (W) : 455 Wp ±2%
Voc (V) : 41.33 V
Vm (V) : 34.06 V
Isc (A) : 13.93 A
Imax (A) : 13.36 A

Dimension (L x W x H) : 1908 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



WARNING
ELECTRICAL HAZARD

ELECTRICAL PARAMETER MEASURED AT STC

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ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
YEAR OF MAKE : 2024 MODEL : ISEN455-Bi
NOMINAL WATTAGE: 455 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN450-Bi)



 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN450-Bi Pmax (W) : 450 Wp ±2% Voc (V) : 41.18 V Vm (V) : 33.95 V Isc (A) : 13.85 A Imax (A) : 13.26 A	Dimension (L x W x H) : 1908 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN450-Bi
 NOMINAL WATTAGE: 450 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN445-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN445-Bi Pmax (W) : 445 Wp ±2% Voc (V) : 41.10 V Vm (V) : 33.84 V Isc (A) : 13.79 A Imax (A) : 13.16 A	Dimension (L x W x H) : 1908 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN445-Bi
 NOMINAL WATTAGE: 445 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN440-Bi)



 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN440-Bi Pmax (W) : 440 Wp ±2% Voc (V) : 41.02 V Vm (V) : 33.72 V Isc (A) : 13.73 A Imax (A) : 13.05 A	Dimension (L x W x H) : 1908 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN440-Bi
 NOMINAL WATTAGE: 440 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN435-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN435-Bi Pmax (W) : 435 Wp ±2% Voc (V) : 40.91 V Vm (V) : 33.61 V Isc (A) : 13.62 A Imax (A) : 12.95 A	Dimension (L x W x H) : 1908 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN435-Bi
 NOMINAL WATTAGE: 435 Wp ± 2% MADE IN INDIA

ICON435B1006081001






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(Series Model: ISEN430-Bi)



 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN430-Bi Pmax (W) : 430 Wp ±2% Voc (V) : 40.79 V Vm (V) : 33.51 V Isc (A) : 13.51 A Imax (A) : 12.84 A	Dimension (L x W x H) : 1908 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN430-Bi
 NOMINAL WATTAGE: 430 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN425-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN425-Bi Pmax (W) : 425 Wp ±2% Voc (V) : 40.75 V Vm (V) : 33.46 V Isc (A) : 13.46 A Imax (A) : 12.71 A	Dimension (L x W x H) : 1908 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN425-Bi
 NOMINAL WATTAGE: 425 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN420-Bi)



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Factory Address- PH No. 09, Gram-Dighari, Mandir
Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India
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Model No : ISEN420-Bi
Pmax (W) : 420 Wp ±2%
Voc (V) : 40.71 V
Vm (V) : 33.42 V
Isc (A) : 13.42 A
Imax (A) : 12.57 A

Dimension (L x W x H) : 1908 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



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ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
YEAR OF MAKE : 2024 MODEL : ISEN420-Bi
NOMINAL WATTAGE: 420 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN410-Bi)



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Factory Address- PH No. 09, Gram-Dighari, Mandir
Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India
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Model No : ISEN410-Bi
Pmax (W) : 410 Wp ±2%
Voc (V) : 37.21 V
Vm (V) : 31.52 V
Isc (A) : 13.82 A
Imax (A) : 13.01 A

Dimension (L x W x H) : 1722 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



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ELECTRICAL PARAMETER MEASURED AT STC

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ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
YEAR OF MAKE : 2024 MODEL : ISEN410-Bi
NOMINAL WATTAGE: 410 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN405-Bi)



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Factory Address- PH No. 09, Gram-Dighari, Mandir
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Model No : ISEN405-Bi
Pmax (W) : 405 Wp ±2%
Voc (V) : 37.06 V
Vm (V) : 31.36 V
Isc (A) : 13.75 A
Imax (A) : 12.92 A

Dimension (L x W x H) : 1722 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



WARNING
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ELECTRICAL PARAMETER MEASURED AT STC

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ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
YEAR OF MAKE : 2024 MODEL : ISEN405-Bi
NOMINAL WATTAGE: 405 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN400-Bi)



Icon Solar-En Power Technologies Private Limited
Factory Address- PH No. 09, Gram-Dighari, Mandir
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Tel: +91 771-4065755

Model No : ISEN400-Bi
Pmax (W) : 400 Wp ±2%
Voc (V) : 36.91 V
Vm (V) : 31.20 V
Isc (A) : 13.68 A
Imax (A) : 12.83 A

Dimension (L x W x H) : 1722 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



WARNING
ELECTRICAL HAZARD

ELECTRICAL PARAMETER MEASURED AT STC

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YEAR OF MAKE : 2024 MODEL : ISEN400-Bi
NOMINAL WATTAGE: 400 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN395-Bi)



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Model No : ISEN395-Bi
Pmax (W) : 395 Wp ±2%
Voc (V) : 36.76 V
Vm (V) : 31.04 V
Isc (A) : 13.61 A
Imax (A) : 12.73 A

Dimension (L x W x H) : 1722 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



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ELECTRICAL PARAMETER MEASURED AT STC

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YEAR OF MAKE : 2024 MODEL : ISEN395-Bi
NOMINAL WATTAGE: 395 Wp ± 2% MADE IN INDIA

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(Series Model: ISEN390-Bi)



Icon Solar-En Power Technologies Private Limited
Factory Address- PH No. 09, Gram-Dighari, Mandir
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Model No : ISEN390-Bi
Pmax (W) : 390 Wp ±2%
Voc (V) : 36.61 V
Vm (V) : 30.88 V
Isc (A) : 13.54 A
Imax (A) : 12.63 A

Dimension (L x W x H) : 1722 x 1134 x 35mm
System Voltage : 1500 V
Series Fuse Rating : 25 A
Application Class : CLASS A
Safety Class : CLASS II
Fire safety Class : CLASS C



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ELECTRICAL PARAMETER MEASURED AT STC

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YEAR OF MAKE : 2024 MODEL : ISEN390-Bi
NOMINAL WATTAGE: 390 Wp ± 2% MADE IN INDIA

ICON390B1006081001





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(Series Model: ISEN390-Bi)



 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN390-Bi Pmax (W) : 390 Wp ±2% Voc (V) : 36.61 V Vm (V) : 30.88 V Isc (A) : 13.54 A Imax (A) : 12.63 A	Dimension (L x W x H) : 1722 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN390-Bi
 NOMINAL WATTAGE: 390 Wp ± 2% MADE IN INDIA

ICON390B1006081001




(Series Model: ISEN385-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN385-Bi Pmax (W) : 385 Wp ±2% Voc (V) : 36.46 V Vm (V) : 30.72 V Isc (A) : 13.47 A Imax (A) : 12.54 A	Dimension (L x W x H) : 1722 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
	ELECTRICAL PARAMETER MEASURED AT STC		

ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD.
 YEAR OF MAKE : 2024 MODEL : ISEN385-Bi
 NOMINAL WATTAGE: 385 Wp ± 2% MADE IN INDIA

ICON385B1006081001






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(Series Model: ISEN380-Bi)

 Icon Solar-En Power Technologies Private Limited Factory Address- PH No. 09, Gram-Dighari, Mandir Hasaud, Teh - Arang, Raipur 492001, Chhattisgarh, India Tel: +91 771-4065755	Model No : ISEN380-Bi Pmax (W) : 380 Wp ±2% Voc (V) : 36.31 V Vm (V) : 30.56 V Isc (A) : 13.40 A Imax (A) : 12.44 A	Dimension (L x W x H) : 1722 x 1134 x 35mm System Voltage : 1500 V Series Fuse Rating : 25 A Application Class : CLASS A Safety Class : CLASS II Fire safety Class : CLASS C	 WARNING ELECTRICAL HAZARD
ELECTRICAL PARAMETER MEASURED AT STC			www.iconsolar-en.com
<p>ICON SOLAR-EN POWER TECHNOLOGIES PVT. LTD. YEAR OF MAKE : 2024 MODEL : ISEN380-Bi NOMINAL WATTAGE: 380 Wp ± 2% MADE IN INDIA</p> <p>ICON380B1006081001</p> 			





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Similarities & difference between representative model and series/family models:									
Sr. No	Series/Family Models	Electrical Specifications						Model difference	Model similarities
		Maximum System Voltage, (Vdc)	Open Circuit Voltage @STC/Voc (Vdc)	Rated Voltage @ STC/ Vmp (V dc)	Short Circuit Current @ STC/Isc (A)	Rated Current @ STC/Imp (A)	Rated Maximum Power at STC, (Watts)		
1.	ISEN600-Bi (Representative Model)	1500	53.50	45.20	14.08	13.29	600	<ul style="list-style-type: none"> • Pmp • Voc • Isc • Vmp • Imp <ul style="list-style-type: none"> • Maximum System Voltage • Cell technology • Encapsulation • Superstrate • Module size • Backsheet/ substrate • Frame and/or mounting structure • Junction box/electrical termination • Cell interconnect materials or technique • Electrical circuit of an identical package • Power output (by 10%) in the identical package including size and using the identical cell process. • Bypass diode 	
Series Models:									
2.	ISEN595-Bi	1500	53.40	45.00	14.01	13.23	595		
3.	ISEN590-Bi	1500	53.30	44.80	13.94	13.18	590		
4.	ISEN585-Bi	1500	53.20	44.60	13.87	13.12	585		
5.	ISEN580-Bi	1500	53.10	44.40	13.79	13.07	580		
6.	ISEN575-Bi	1500	53.00	44.20	13.69	13.02	575		
7.	ISEN570-Bi	1500	52.90	44.00	13.60	12.96	570		
8.	ISEN565-Bi	1500	52.80	43.80	13.55	12.91	565		
9.	ISEN560-Bi	1500	52.70	43.60	13.49	12.85	560		
10.	ISEN555-Bi	1500	49.75	42.12	14.02	13.18	555		
11.	ISEN550-Bi	1500	49.60	41.97	13.98	13.11	550		
12.	ISEN545-Bi	1500	49.45	41.81	13.93	13.04	545		
13.	ISEN540-Bi	1500	49.30	41.65	13.86	12.97	540		
14.	ISEN535-Bi	1500	49.15	41.47	13.79	12.91	535		
15.	ISEN530-Bi	1500	49.00	41.32	13.72	12.83	530		
16.	ISEN525-Bi	1500	48.85	41.16	13.65	12.76	525		
17.	ISEN520-Bi	1500	48.70	41.00	13.58	12.69	520		
18.	ISEN505-Bi	1500	45.54	38.53	13.98	13.11	505		
19.	ISEN500-Bi	1500	45.39	38.38	13.93	13.04	500		
20.	ISEN495-Bi	1500	45.24	38.22	13.86	12.97	495		
21.	ISEN490-Bi	1500	45.09	38.02	13.79	12.91	490		
22.	ISEN485-Bi	1500	44.94	37.90	13.72	12.81	485		
23.	ISEN480-Bi	1500	44.75	37.78	13.65	12.71	480		
24.	ISEN460-Bi	1500	41.48	34.18	14.01	13.47	460		
25.	ISEN455-Bi	1500	41.33	34.06	13.93	13.36	455		
26.	ISEN450-Bi	1500	41.18	33.95	13.85	13.26	450		
27.	ISEN445-Bi	1500	41.10	33.84	13.79	13.16	445		
28.	ISEN440-Bi	1500	41.02	33.72	13.73	13.05	440		
29.	ISEN435-Bi	1500	40.91	33.61	13.62	12.95	435		
30.	ISEN430-Bi	1500	40.79	33.51	13.51	12.84	430		
31.	ISEN425-Bi	1500	40.75	33.46	13.46	12.71	425		
32.	ISEN420-Bi	1500	40.71	33.42	13.42	12.57	420		
33.	ISEN410-Bi	1500	37.21	31.52	13.82	13.01	410		
34.	ISEN405-Bi	1500	37.06	31.36	13.75	12.92	405		





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35.	ISEN400-Bi	1500	36.91	31.20	13.68	12.83	400		
36.	ISEN395-Bi	1500	36.76	31.04	13.61	12.73	395		
37.	ISEN390-Bi	1500	36.61	30.88	13.54	12.63	390		
38.	ISEN385-Bi	1500	36.46	30.72	13.47	12.54	385		
39.	ISEN380-Bi	1500	36.31	30.56	13.40	12.44	380		





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Test item particulars	Crystalline Silicon Terrestrial Photovoltaic (PV) Modules (Si Wafer Based)
Accessories and detachable parts included in the evaluation.....	N/A
Mounting system used.....	As per Installation Manual
Other options included.....	N/A
Possible test case verdicts:	
- test case does not apply to the test object.....	N/A
- test object does meet the requirement.....	P(Pass)
- test object does not meet the requirement.....	F(Fail)
Abbreviations used in the report:	
Pmax – Maximum power	PD – Partial Discharge
Vpm – Maximum power voltage	RTI/RTE – Relative Thermal Endurance Index
Ipm – Maximum power current	STC – Standard Test Conditions
Isc – Short circuit current	TC – Thermal Cycling
Voc – Open circuit voltage	CTI – Comparative Tracking Index
FF –Fill factor	MST – Module Safety Test
Testing	
Date of receipt of test item.....	26/06/2024
Date(s) of performance of tests.....	28/06/2024 to 16/09/2024

General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Throughout this report a [] comma/ [X] point is used as the decimal separator.	
This Test Report Form is intended for the investigation of PV modules in accordance with IS/IEC 61730-2:2004 +A1:2017. It can only be used together with IS/IEC 61730-1:2004 +A1:2017+A2:2017 Test Report.	
Name and address of factory (ies).....	Icon Solar En Power Technologies Private Limited. PH. NO.09, GRAM DIGHARI MANDIR HASAUD, TEH ARANG CHHATTISGARH RAIPUR 492001, CHHATTISHGARH, 492001





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General product information:	
PV module type reference.....:	ISEN600-Bi
Product Electrical Ratings at STC	
Nominal maximum power (Pmax).....:	600W
Nominal open circuit voltage at (Voc).....:	53.50V
Nominal short circuit current at (Isc).....:	14.08A
Nominal maximum power voltage (Vpm).....:	45.20V
Nominal maximum power current (Ipm).....:	13.29A

Product Safety Ratings	
Maximum systems operating voltage.....:	1500V
Maximum over-current protection rating.....:	25A
Safety Application class.....:	Class A
Safety class in accordance with IEC 61140.....:	Class II
Fire safety class.....:	Class C
Recommended maximum series/parallel module configurations.....:	Maximum number of 26 modules in series.
Scope of Module Safety Qualification Testing:	
<input checked="" type="checkbox"/> Initial module safety qualification	
<input checked="" type="checkbox"/> Extension of module safety qualification original test report ref. no.....:	
Model differences and modification:	
<input checked="" type="checkbox"/> Change in cell technology	<input type="checkbox"/> Change in cell interconnect materials/technique
<input type="checkbox"/> Modification to encapsulation system	<input type="checkbox"/> Modification to junction box/el. Termination
<input type="checkbox"/> Modification to superstrate	<input type="checkbox"/> Change in el. circuit of an identical package
<input type="checkbox"/> Modification to backsheets/substrate	<input type="checkbox"/> Higher or lower output by 10 %
<input type="checkbox"/> Modification to frame/mounting structure	<input type="checkbox"/> Increase in module size
<input type="checkbox"/> Removal of frame	

- Note (1)** Use the "General product information" field to give any information on model differences within a product type family covered by the test report.
- Note (2)** Use the "General product information" field to describe the range of electrical and safety ratings, if the TRF covers a type family of modules.
- Note (3)** Use Annex 1 to list the used materials and components of the module (manufacturer/supplier and type reference)





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Clause	Requirement + Test	Result – Remark	Verdict
3	Application Classes		P
	The module has been evaluated for the following Application Class (Class A, B, C).....:	Class A	P
6	Sampling		P
	[X] The modules tested (modules and laminate) were taken at random from a production batch and subjected to manufacturer’s normal quality control and inspection for safety testing.	-	P
	[] The modules tested (modules and laminate) were prototypes of a new design and not taken from a production batch.	-	N/A
	[X] Preconditioning of test samples was performed within IS 14286 (2010) or IS 16077:2013/IEC 61646:2008 performance testing.	-	P
	[] Preconditioning of test samples was performed separately from IS 14286 (2010) or IS 16077:2013/IEC 61646:2008 performance testing.	-	N/A

List of test samples		
Sample No.	Type / model	Remark Serial number
Full Testing		
15	ISEN600-Bi	ICON600B1006081020
16		ICON600B1006081021
17		ICON600B1006081022
18		ICON600B1006081023
19		ICON600B1006081024
20		ICON600B1006081025
21		ICON600B1006081026
22		ICON600B1006081027
23		ICON600B1006081028
24		ICON600B1006081029
Modification due to change in cell technology		
25	ISEN600-Bi	ICON600B1006081030
26		ICON600B1006081031
Supplementary information: NIL		





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Clause	Requirement + Test	Result – Remark	Verdict
9	Pass Criteria		P
	The module under evaluation was judged to have passed all safety qualification test. The test samples met all of the criteria of each individual safety test.	See appended tables	P
Supplementary information: NIL			

10	Test Procedures	Result – Remark	Verdict
	Safety qualification testing includes the following Module Safety Tests (MST) of IS/IEC 61730-2		P
10.1	MST 01 - Visual inspection.....:	see table 10.1	P
10.2	MST 11 - Accessibility test.....:	see table 10.2	P
10.3	MST 12 - Cut susceptibility test.....:	see table 10.3	P
10.4	MST 13 - Ground continuity test.....:	see table 10.4	P
10.5	MST 14 - Impulse voltage test.....:	see table 10.5	P
10.6	MST 16 - Dielectric withstand test.....:	see table 10.6	P
10.7	MST 21 - Temperature test.....:	see table 10.7	P
10.8	MST 23 - Fire test.....:	see table 10.8	P
MST 25	MST 25 - Bypass diode thermal test.....:	See table A2.9	P
MST 42	MST 42 - Robustness of terminations test.....:	See table A2.4	P
10.9	MST 26 - Reverse current overload Test.....:	see table 10.9	P
10.10	MST 32 - Module breakage test.....:	see table 10.10	P
MST 17	MST 17 - Wet leakage current test.....:	see table MST 17	P
MST 22	MST 22 - Hot-spot test.....:	see table A 2.10	P
MST 34	MST 34 - Mechanical load test.....:	see table A 2.7	P
MST 51a	MST 51a - Thermal cycling test (TC200).....:	see table A 2.8	P
MST 51b	MST 51b - Thermal cycling test (TC50).....:	see table A 2.2	P
MST 52	MST 52 - Humidity freeze test.....:	see table A 2.3	P
MST 53	MST 53 - Damp heat test.....:	see table A 2.5	P
MST 54	MST 54 - UV preconditioning test.....:	see table A 2.1	P
Component tests:			
11.1	MST 15 - Partial discharge test.....:	see table 11.1	N/A
11.2	MST 33 - Conduit bending test.....:	see table 11.2	N/A
11.3	MST 44 - Terminal box knockout test.....:	see table 11.3	N/A
Supplementary information: NIL			





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Clause	Requirement + Test	Result – Remark	Verdict
--------	--------------------	-----------------	---------

10.1	TABLE: Visual Inspection - MST 01 (Initial)		P
Sample No.	Nature and position of findings		-
15	No visual defect		P
16	No visual defect		P
17	No visual defect		P
18	No visual defect		P
19	No visual defect		P
20	No visual defect		P
21	No visual defect		P
22	No visual defect		P
23	No visual defect		P
24	No visual defect		P
25	No visual defect		P
26	No visual defect		P

Supplementary information: NIL

10.2	TABLE: Accessibility Test - MST 11 (Initial)		P
	Maximum system voltage [V _{DC}].....:	1500	-
Sample No.	Result [MΩ]		-
16	Resistance between the test fixture and the electrical circuit of module is > 1MΩ		P
17	Resistance between the test fixture and the electrical circuit of module is > 1MΩ		P
18	Resistance between the test fixture and the electrical circuit of module is > 1MΩ		P
19	Resistance between the test fixture and the electrical circuit of module is > 1MΩ		P

Supplementary information: NIL

10.4	TABLE: Ground Continuity Test - MST 13 (Initial)		P
	Maximum system voltage [V _{DC}].....:	1500	-
	Current applied [A].....:	62.5	-
	Location of designated grounding point.....:	Ground holes on the sides of the frame	-
	Location of second contacting point.....:	Greatest physical displacement from the grounding point.	-
Sample No.	Voltage [V _{DC}]	Resistance [mΩ]	-
16	0.42	5.600	P
17	0.40	5.333	P
18	0.37	4.933	P
19	0.43	5.733	P

Supplementary information: NIL





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Clause	Requirement + Test	Result – Remark	Verdict		
10.6	TABLE: Dielectric Withstand Test - MST 16 (Initial)		P		
	Maximum system voltage [V _{DC}].....:	1500	-		
	Test voltage applied V _{TEST} [V _{DC}].....:	8000 for 1min/1500 for 2min	-		
	Module area A [m ²].....:	2.79	-		
	Sample No.	Dielectric breakdown	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance x A [MΩ.m ²] [#]	-
	16	[X]	10.13	40	P
	17	[X]	10.75	40	P
	18	[X]	11.07	40	P
	19	[X]	9.52	40	P

Supplementary information: [X]: No breakdown occurred. ; #: Limit

MST 17	TABLE: Wet Leakage Current Test - MST 17 (Initial)		P	
	Maximum system voltage [V _{DC}].....:	1500	-	
	Test voltage applied V _{TEST} [V _{DC}].....:	1500	-	
	Module area A [m ²].....:	2.79	-	
	Resistivity of wetting agent [Ω.cm].....:	2502	-	
	Average wetting agent temperature [°C].....:	23.1	-	
	Sample No.	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance x A [MΩ.m ²] [#]	-
	16	7.13	40	P
	17	7.51	40	P
	18	6.28	40	P
	19	7.05	40	P

Supplementary information: #: Limit

10.3	TABLE: Cut Susceptibility Test - MST 12		P
	Applied force [N].....:	8.9 ± 0.5	-
	Sample No.		-
	16	[X] No exposure of active circuitry of the module	P
	17	[X] No exposure of active circuitry of the module	P

Supplementary information: NIL

10.1	TABLE: Visual Inspection - MST 01 (after Cut Susceptibility Test)		P
	Sample No.	Nature and position of findings	-
	16	No Visual defects	P
	17	No Visual defects	P

Supplementary information: NIL





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Clause	Requirement + Test	Result – Remark	Verdict
10.6	TABLE: Dielectric Withstand Test - MST 16 (after Cut Susceptibility Test)		P
	Maximum system voltage [V _{DC}].....:	1500	-
	Test voltage applied V _{TEST} [V _{DC}].....:	8000V for 1min/1500V for 2min	-
	Module area A [m ²].....:	2.79	-
Sample No.	Dielectric breakdown	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance x A [MΩ.m ²] [#]
16	[X]	5.29	40
17	[X]	5.82	40
Supplementary information: [X]: No breakdown occurred. ; # : Limit.			

MST 17	TABLE: Wet Leakage Current Test - MST 17 (after Cut Susceptibility Test)		P
	Maximum system voltage [V _{DC}].....:	1500	-
	Test voltage applied V _{TEST} [V _{DC}].....:	1500	-
	Module area A [m ²].....:	2.79	-
	Resistivity of wetting agent [Ω.cm].....:	2512	-
	Average wetting agent temperature [°C].....:	24.0	-
Sample No.	Insulation resistance at V _{TEST} [GΩ]		Insulation resistance x A [MΩ.m ²] [#]
16	4.16		40
17	4.53		40
Supplementary information: # - Limit.			

10.2	TABLE: Accessibility test - MST 11		P
	Maximum system voltage [V _{DC}].....:	1500	-
Sample No.	Nature and position of findings		-
16	Resistance between the test fixture and the electrical circuit of module is > 1MΩ		P
17	Resistance between the test fixture and the electrical circuit of module is > 1MΩ		P
Supplementary information: NIL			

10.4	TABLE: Ground Continuity Test - MST 13		P
	Maximum system voltage [V _{DC}].....:	1500	-
	Current applied [A].....:	62.5	-
	Location of designated grounding point.....:	Ground holes on the sides of the frame	-
	Location of second contacting point.....:	Greatest physical displacement from the grounding point.	-
Sample No.	Voltage [V _{DC}]	Resistance [mΩ]	
16	0.35	4.667	
17	0.32	4.267	
Supplementary information: NIL			





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10.5	TABLE: Impulse Voltage Test - MST 14			P
	Maximum system voltage [V _{DC}].....:	1500		-
	Impulse voltage [V].....:	16000		-
	Thickness of conductive foil [mm].....:	0.05		-
Sample No.				-
19	No dielectric breakdown or surface tracking			P
Supplementary information: NIL				
10.1	TABLE: Visual Inspection - MST 01 (after Impulse Voltage Test)			P
Sample No.	Nature and position of findings			-
19	No visual defect			P
Supplementary information: NIL				
10.6	TABLE: Dielectric Withstand Test - MST 16 (after Impulse Voltage Test)			P
	Maximum system voltage [V _{DC}].....:	1500		-
	Test voltage applied V _{TEST} [V _{DC}].....:	8000V for 1min/1500 V for 2min		-
	Module area A [m ²].....:	2.79		-
Sample No.	Dielectric breakdown	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance x A [MΩ.m ²] [#]	-
19	[X]	8.15	40	P
Supplementary information: [X]: No breakdown occurred. ; [#] - Limit.				





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10.7 TABLE: Temperature Test - MST 21				P
Sample No.:		21		-
Reference solar irradiance [W/m ²].....:		1000		-
Reference ambient temperature [°C].....:		40		-
Measuring location	Component temperature T _{OBS} [°C]	Normalised temperature T _{CON} [°C]	Component temperature limit [°C]	
Module open-circuited				
Module superstrate above the centre cell	68.13	79.63	Not specified	-
Module substrate below the centre cell	65.48	76.98	140	-
Terminal enclosure interior surface	61.75	73.25	85	P
Terminal enclosure interior air space	61.84	73.34	85	P
Field wiring terminals	63.49	74.99	90	P
Insulation of the field wiring leads	59.87	71.37	90	P
External connector bodies	58.35	69.85	85	P
Diode D1	57.05	68.55	200	P
Diode D2	56.47	67.97	200	P
Diode D3	57.39	68.89	200	P
Module short-circuit				
Module superstrate above the centre cell	72.85	84.15	Not specified	-
Module substrate below the centre cell	73.40	84.70	140	-
Terminal enclosure interior surface	63.62	74.92	85	P
Terminal enclosure interior air space	63.39	74.69	85	P
Field wiring terminals	63.95	75.25	90	P
Insulation of the field wiring leads	58.13	69.43	90	P
External connector bodies	57.58	68.88	85	P
Diode D1	72.22	83.52	200	P
Diode D2	70.37	81.67	200	P
Diode D3	70.91	82.21	200	P

Supplementary information: T_{CON} = T_{OBS} + (40 °C - T_{AMB}), temperature limits are given in Table 9 of IS/IEC 61730-2.





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10.7	TABLE: Temperature Test - MST 21				P
	Sample No.:	26			-
	Reference solar irradiance [W/m ²].....:	1000			-
	Reference ambient temperature [°C].....:	40			-
Measuring location	Component temperature T _{OBS} [°C]	Normalised temperature T _{CON} [°C]	Component temperature limit [°C]		
Module open-circuited					
Module superstrate above the centre cell	68.54	72.91	Not specified	-	
Module substrate below the centre cell	65.87	73.64	140	-	
Terminal enclosure interior surface	62.13	63.88	85	P	
Terminal enclosure interior air space	62.27	63.75	85	P	
Field wiring terminals	63.95	64.19	90	P	
Insulation of the field wiring leads	60.28	58.72	90	P	
External connector bodies	59.03	58.26	85	P	
Diode D1	58.15	72.53	200	P	
Diode D2	56.83	71.22	200	P	
Diode D3	57.95	72.07	200	P	
Module short-circuit					
Module superstrate above the centre cell	72.91	84.21	Not specified	-	
Module substrate below the centre cell	73.64	84.94	140	-	
Terminal enclosure interior surface	63.88	75.18	85	P	
Terminal enclosure interior air space	63.75	75.05	85	P	
Field wiring terminals	64.19	75.49	90	P	
Insulation of the field wiring leads	58.72	70.02	90	P	
External connector bodies	58.26	69.56	85	P	
Diode D1	72.53	83.83	200	P	
Diode D2	71.22	82.52	200	P	
Diode D3	72.07	83.37	200	P	

Supplementary information: T_{CON} = T_{OBS} + (40 °C - T_{AMB}), temperature limits are given in Table 9 of IS/IEC 61730-2.

10.8	TABLE: Fire Test - MST 23			P
	Module fire resistance class (A, B, C).....:	Class C		-
	No. of modules provided to create the test assembly....:	3		-
Sample No.				
22#	[X] Modules comply with the requirements for the fire resistance class			P
23#				P
24*				P

Supplementary information: # - Spread of flame, * - Brand





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10.9	TABLE: Reverse Current Overload Test - MST 26		P
	Module over-current protection rating [A].....:	25	-
	Test current [A].....:	33.75	-
	Range of applied voltage [V].....:	49.05--52.37 for sample no. 21 48.82--52.11 for sample no. 26	-
	Test duration.....:	2 hours	-
Sample No.			-
21	[X] No flaming of the module [X] No flaming or charring of the cheesecloth [X] No flaming of the tissue paper		P
26	[X] No flaming of the module [X] No flaming or charring of the cheesecloth [X] No flaming of the tissue paper		P

Supplementary information: Nil

MST 17	TABLE: Wet Leakage Current Test - MST 17 (after Reverse Current Overload Test)		P
	Maximum system voltage [V _{DC}].....:	1500	-
	Test voltage applied V _{TEST} [V _{DC}].....:	1500	-
	Module area A [m ²].....:	2.79	-
	Resistivity of wetting agent [Ω.cm].....:	2508	-
	Average wetting agent temperature [°C].....:	23.0	-
Sample No.		Insulation resistance at V _{TEST} [GΩ]	Insulation resistance x A [MΩ.m ²] [#]
21		5.97	40
26		6.48	40

Supplementary information: #: Limit

	TABLE: Module Breakage Test - MST 32		P
	Weight of impactor [kg].....:	45.5	-
	Thickness of sample [mm].....:	5.3	-
	Mounting technique used.....:	As instructed in manual	-
	Module breakage.....:	[] No breakage [] Breakage at 300 mm [] Breakage at 450 mm [X] Breakage at 1220 mm	-
	Weight of particles in case of breakage [g].....:	No particle ejected from the sample	-
Sample No.			-
20	[] Breakage occurred, but no shear or opening large enough for a 76 mm diameter sphere to pass freely has developed.		N/A
	[] Disintegration occurred, but the ten largest crack-free particles selected 5 min subsequent to the test did not weigh more in grams than 16 times the thickness of the sample in millimetres.		N/A
	[X] Breakage occurred, but no particles larger than 6.5 cm ² have been ejected from the sample.		P

Supplementary information: NIL

11	Component Tests		N/A
	MST 15 - Partial discharge test.....:	No such construction	N/A
	MST 33 - Conduit bending test.....:	No such construction	N/A
	MST 44 - Terminal box knockout test.....:	No such construction	N/A





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11.1	TABLE: Partial Discharge Test - MST 15		N/A
	Manufacturer.....:	-	-
	Type reference.....:	-	-
	Materials and thicknesses.....:	-	-
	Ambient temperature [°C].....:	-	-
	Relative humidity [%].....:	-	-
	Test medium (air/oil).....:	-	-
Sample No.	PD inception voltage, U _i [V]	PD extinction voltage, U _e [V]	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
Mean value of PD extinction voltage, \bar{U}_e , avg [V]		-	
Standard deviation of PD extinction voltage, σ [V]..... :		-	
Mean value minus standard deviation of PD extinction voltage [V]		-	
Resulting maximum system voltage, U _{sys} [V]..... :		-	

Supplementary information: No such construction
 Calculation of maximum system voltage:
 Safety factor $F_1 = 1.2$ (Basic safety factor)
 $F_2 = 1$ (Hysteresis factor)
 $F_3 = 1.25$ (Additional safety factor: reinforced insulation)
 Allowable maximum system voltage: $U_{sys} = 2 \times (U_{e,avg} - \sigma) / (F_1 \times F_2 \times F_3) V_{DC}$

11.2	TABLE: Bending Test - MST 33		N/A
	Manufacturer and type reference of conduit.....:	-	-
	Trade size of conduit [mm].....:	-	-
	Distance between the ends of the conduit in the box	-	-
	Distance between supports.....:	-	-
	Force load in accordance with Table 10 of IS/IEC 61730-2 [N].....:	-	-
Sample No.			-
	[] No rupture of the attachment walls of the junction box		
	[] No separation of junction box from the conduit		

Supplementary information: No such construction
 Distance between supports = 760 mm + Distance between the ends of the conduit in the box





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Clause	Requirement + Test	Result – Remark	Verdict
11.3	TABLE: Terminal Box Knockout Test - MST 44		N/A
	Manufacturer of terminal box.....:		-
	Type reference.....:		-
	Number of knockouts in the junction box.....:		-
	Force applied to knockout [N].....:	44.5	-
Knockout No.			-
	<input type="checkbox"/> The knockout remains in place		
	<input type="checkbox"/> The clearance between knockout and opening is < 0.75 mm		
	<input type="checkbox"/> The knockout remains in place		
	<input type="checkbox"/> The clearance between knockout and opening is < 0.75 mm		
	<input type="checkbox"/> The knockout remains in place		
	<input type="checkbox"/> The clearance between knockout and opening is < 0.75 mm		
	<input type="checkbox"/> The knockout remains in place		
	<input type="checkbox"/> The clearance between knockout and opening is < 0.75 mm		
Supplementary information: No such construction			





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ANNEX 1: PRODUCT DESCRIPTION SHEET (MANUFACTURERS AND TYPE REFERENCES)

A1.1	MODULE TYPE/S	
	Model Tested: ISEN600-Bi	
A1.2	MODULE DESIGN –DIMENSIONS	
	Module dimensions (L x W x H) [mm].....:	2464*1134*35 for 156 half cut cell family 2278*1134*35 for 144 half cut cell family 2094*1134*35 for 132 half cut cell family 1908*1134*35 for 120 half cut cell family 1722*1134*35 for 108 half cut cell family
A1.3	SOLAR CELL	
	Cell type reference.....:	Main: 182.2 MONO PERC SOLAR CELL PIRANHA P-TYPE BI-FACIAL, Manufactured by: Premier Energies Alternate: WS182MP10, Manufactured by: Websol Energy System Limited
	Cell dimensions L x W x T (± %) [mm].....:	Main: 91.1mm *182.2mm (±0.25 mm) Alternate: 91.1mm *182.2mm (±0.5 mm)
	Cell thickness [µm].....:	Main: 145 ± 25 µm Alternate: 150 ± 15 µm
	Cell area [cm ²].....:	Main: 165.984 Alternate: 165.984
A1.4	IDENTIFICATION OF MATERIALS	
	Front cover.....:	Solar Glass Tempered AR Coated; THICKNESS: 3.2mm ± 0.2mm; Manufactured by: BOROSIL RENEWABLES LTD.
	Rear cover.....:	PRESERV 1- 300 TF; THICKNESS: 360 µm, Rated voltage: 1500V, FSI :29.5, RTI 140°C and 150°C Manufactured by: Renewsys India Private LTD. Partial discharge reference project no. 4789424469 tested by UL India Pvt Ltd
	Encapsulation material.....:	T601FC/ B601FC, Thickness: 0.60mm; Manufactured by: Sunlink Photovoltaic Pvt. Ltd.
	Frame parts.....:	Material/Coating: Alloy 6063, T6, Thickness: 35mm; Manufactured by Sudarshan Alluminium India Limited
	Mounting parts.....:	As per installation manual
	Adhesive for frame.....:	Fasto SM30, White colour; Manufactured by FASTO ADVANCE MATERIALS INDIA PVT. LTD.
	Cell connector.....:	Solder tin plated copper ribbons, Sn60%/Pb40% Dimensions [mm]: 0.32 mm; Manufactured by: GEBA CABLES & WIRES INDIA PRIVATE LIMITED
	String connector.....:	Busbar, Sn60%/Pb40%, Dimensions [mm]: 4x 0.40mm & 6x 0.40mm, Manufactured by: GEBA CABLES & WIRES INDIA PRIVATE LIMITED
	Fluxing agent.....:	952-S, Low-Solids, No-Clean Liquid Flux, Manufactured by Kester
	Junction box.....:	GXSB-01, Rated voltage: 1.5KVDC, Rated Current: 25A, IP68, Ambient





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		Temperature: -40°C to +85°C, Manufactured by GENX PV INDIA PRIVATE LIMITED. Certified by TUV SUD; certificate no.: B1157770002
	Cable	BIRLA UNISTAR solar cable 1CX4.0mm ² , Rated voltage: 1.8 kV DC (Max.), Temperature: - 40°C to +90°C, Max. temperature at conductor:120°C, Manufactured by VINDHYA TELELINKS LIMITED Certificate no.: R 60148057, Tested by TUV Rheinland.
	Connector.....:	GXC-01, Rated voltage: 1500VDC, Rated current: 40A, IP68, Ambient Temperature: -40°C to 85°C, Manufactured by GENX PV INDIA PRIVATE LIMITED. Certificate no.: B 115777 0001 Rev. 00, Tested by TUV SUD.
	Bypass diode.....:	MK5045, Tj [°C]: -55 to +200°C, V _{RMS} : 31.5V; I _{FSM} : 400A; R _{ΘJC} : 2°C/W, Manufactured by GENX PV INDIA PRIVATE LIMITED.
	Potting material.....:	Fasto SP70, White colour; Manufactured by FASTO ADVANCE MATERIALS INDIA PVT. LTD.
	Adhesive for junction box.....:	Fasto SM30, White colour; Manufactured by FASTO ADVANCE MATERIALS INDIA PVT. LTD.
	Soldering Material.....:	N/A
	Additional material (e. g. insulation tape)....:	N/A

A1.5	MODULE DESIGN - MINIMUM DISTANCES	
	Between cells.....:	Top to bottom: 1.4mm Along the side: 1.8mm
	Between cell and edge of laminate.....:	13.5mm
	Between any current carrying part and edge of laminate....:	14mm

A1.6	MODULE DESIGN - ELECTRICAL CONFIGURATION	
	Total number of cells.....:	156; 144; 132; 120; 108
	Serial-parallel connection of cells.....:	Series parallel
	Cells per bypass diode.....:	52 for 156 half cut cell family 48 for 144 half cut cell family 44 for 132 half cut cell family 40 for 120 half cut cell family 36 for 108 half cut cell family
	No. of bypass diodes.....:	3

Note: Bill of material are same for all series family models.





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ANNEX 2

Preconditioning Tests		P
MST 51 - Thermal cycling (TC50 MST 51b).....:	See table A2.2	P
MST 51 - Thermal cycling (TC200 MST 51a).....:	See table A2.8	P
MST 52 - Humidity freeze (HF10 MST 52).....:	See table A2.3	P
MST 53 - Damp heat (DH 1000 MST 53).....:	See table A2.5	P
MST 54 - UV preconditioning test (MST 54).....:	See table A2.1	P

Electrical shock hazard tests		P
MST 17 - Wet leakage test (MST 17).....:	See table A2.6	P
MST 42 - Robustness of terminal test (MST 42).....:	See table A2.4	P

Fire hazard tests		P
MST 22 - Hot - spot test (MST 17).....:	See table A2.10	P
MST 25 - Bypass diode thermal test (MST 25).....:	See table A2.9	P

Mechanical stress tests		P
MST 34 - Mechanical load test (MST 34).....:	See table A2.7	P

A2.1	TABLE: UV preconditioning test MST 54		P
Test Date [MM/DD/YYYY] start/end.....:	07/09/2024 to 07/17/2024		-
Module temperature [°C].....:	60 ± 5		-
Irradiation 280 - 400 nm [kWh/m ²] UV - A	15.0		-
Irradiation 280 - 320 nm [kWh/m ²] UV - B	5.0		-
Sample No.:	Open circuits (yes/no)		-
16	No open circuit found		P

A2.1	TABLE: Visual Inspection MST 01 (after UV preconditioning test MST 54)		P
Sample No.:	Nature and position of findings		-
16	No visual defect		P

A2.1	TABLE: Dielectric withstand test - MST 16 (after UV preconditioning test MST 54)			P
	Maximum system voltage [V _{DC}].....:	1500		-
	Test voltage applied V _{TEST} [V _{DC}].....:	8000V for 1min/1500 V for 2min		-
	Module area A [m ²].....:	2.79		-
Sample No.:	Dielectric breakdown	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance X A [MΩ.m ²] #	-
16	[X]	9.54	40	P

Supplementary information: [X]: No breakdown occurred. ; #: Limit





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Clause	Requirement + Test	Result – Remark	Verdict
A2.2	TABLE: Thermal cycling 50 test MST 51b		P
	Test Date [MM/DD/YYYY] start/end.....:	07/19/2024 to 07/31/2024	-
	Total cycles (50).....:	50	-
Sample No.:	Open circuits (yes/no)		-
16	No		P
Supplementary information: NIL			
A2.2	TABLE: Visual Inspection MST 01 (after Thermal cycling 50 test MST 51b)		P
Sample No.:	Nature and position of findings		-
16	No visual defect		P
Supplementary information: NIL			
A2.2	TABLE: Dielectric withstand test - MST 16 (after Thermal cycling 50 test MST 51b)		P
	Maximum system voltage [V _{DC}].....:	1500	-
	Test voltage applied V _{TEST} [V _{DC}].....:	8000 V for 1min/1500 V for 2min	-
	Module area A [m ²].....:	2.79	-
Sample No.:	Dielectric breakdown	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance X A [MΩ.m ²] #
16	[X]	8.93	40
Supplementary information: [X]: No breakdown occurred.; #: Limit			

A2.3	TABLE: Humidity freeze test MST 52		P
	Test Date [MM/DD/YYYY] start/end.....:	08/02/2024 to 08/13/2024	-
	Total cycles (10).....:	10	-
Sample No.:	Open circuits (yes/no)		-
16	No		P
Supplementary information: NIL			
A2.3	TABLE: Visual Inspection MST 01 (after Humidity freeze test MST 52)		P
Sample No.:	Nature and position of findings		-
16	No visual defect		P
Supplementary information: NIL			
A2.3	TABLE: Dielectric withstand test - MST 16 (after Humidity freeze test MST 52)		P
	Maximum system voltage [V _{DC}].....:	1500	-
	Test voltage applied V _{TEST} [V _{DC}].....:	8000V for 1min/1500 V for 2min	-
	Module area A [m ²].....:	2.79	-
Sample No.:	Dielectric breakdown	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance X A [MΩ.m ²] #
16	[X]	8.21	40
Supplementary information: [X]: No breakdown occurred.; #: Limit			





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Clause	Requirement + Test	Result – Remark	Verdict
A2.4	TABLE: Robustness of terminations test MST 42		P
Test Date [MM/DD/YYYY] start/end.....:	08/14/2024		-
Types of terminations.....:	[X] Type A: wire of flying lead [] Type B: tags, threaded stubs, screws, etc. [] Type C: connector		-
Applied force in all directions [N].....:	40 for tensile test, 20 for bending test		-
Sample No.:	Open circuits (yes/no)		-
16	No		P
Supplementary information: NIL			

A2.4	TABLE: Visual Inspection MST 01 (after Robustness of terminations test MST 42)		P
Sample No.:	Nature and position of findings		-
16	No visual defect		P
Supplementary information: NIL			

A2.4	TABLE: Dielectric withstand test - MST 16 (after Robustness of terminations test MST 42)		P
	Maximum system voltage [V _{DC}].....:	1500	-
	Test voltage applied V _{TEST} [V _{DC}].....:	8000V for 1min/1500 V for 2min	-
	Module area A [m ²].....:	2.79	-
Sample No.:	Dielectric breakdown	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance X A [MΩ.m ²] #
16	[X]	7.85	40
Supplementary information: [X]: No breakdown occurred. ; #: Limit			

A2.5	TABLE: Damp heat test MST 53		P
Test Date [MM/DD/YYYY] start/end.....:	07/09/2024 to 08/21/2024		-
Total hours (1000).....:	1000		-
Sample No.:	Open circuits (yes/no)		-
17	No		P
Supplementary information: NIL			

A2.5	TABLE: Visual Inspection MST 01 (after Damp heat test MST 53)		P
Sample No.:	Nature and position of findings		-
17	No visual defect		P
Supplementary information: NIL			

A2.5	TABLE: Dielectric withstand test - MST 16 (after Damp heat test MST 53)		P
	Maximum system voltage [V _{DC}].....:	1500	-
	Test voltage applied V _{TEST} [V _{DC}].....:	8000V for 1min/1500 V for 2min	-
	Module area A [m ²].....:	2.79	-
Sample No.:	Dielectric breakdown	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance X A [MΩ.m ²] #
17	[X]	10.08	40
Supplementary information: [X]: No breakdown occurred. ; #: Limit			





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Clause	Requirement + Test	Result – Remark	Verdict
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A2.6 TABLE: Wet leakage current test MST 17			P
Test Date [MM/DD/YYYY] start/end.....:	08/21/2024		-
Test voltage applied [V].....:	1500		-
Solution resistivity [Ω cm].....:	< 3500 Ω cm at 22 \pm 3°C	2503	-
Surface tension [Nm^{-1}].....:	< 0.03 Nm^{-1} at 22 \pm 3°C	0.02	-
Solution temperature [°C].....:	22.8		-
Sample No.:	Measured [$\text{G}\Omega$]	Insulation resistance X A [$\text{M}\Omega\cdot\text{m}^2$] #	-
17	6.90	40	P
Supplementary information: Size of module 2.79 [m^2]. ; # : Limit			

A2.7 TABLE: Mechanical load test MST 34			P
Sample No.:	17		-
Test Date [MM/DD/YYYY].....:	08/23/2024		-
Mounting method.....:	As per manual	As per manual	-
Load applied to.....:	Front side	Back side	-
Mechanical load [Pa].....:	2400	2400	-
First cycle time (start/end).....:	10:15 to 11:15	11:35 to 12:35	-
Intermittent open - circuit (yes/no).....:	No	No	-
Mechanical load [Pa].....:	2400	2400	-
Second cycle time (start/end).....:	12:55 to 01:55	02:15 to 03:15	-
Intermittent open - circuit (yes/no).....:	No	No	-
Mechanical load [Pa].....:	5400	2400	-
Third cycle time (start/end).....:	03:30 to 04:30	04:50 to 5:50	-
Intermittent open - circuit (yes/no).....:	No	No	-
Supplementary information: NIL			

A2.7 TABLE: Visual Inspection MST 01 (after Mechanical load test MST 34)			P
Sample No.:	Nature and position of findings		-
17	No visual defect		P
Supplementary information: NIL			

A2.7 TABLE: Wet leakage current test MST 17 (after Mechanical load test MST 34)			P
Test Date [MM/DD/YYYY] start/end.....:	08/23/2024		-
Test voltage applied [V].....:	1500		-
Solution resistivity [Ω .cm].....:	< 3500 Ω cm at 22 \pm 3°C	2505	-
Surface tension [Nm^{-1}].....:	< 0.03 Nm^{-1} at 22 \pm 3°C	-	-
Solution temperature [°C].....:	23.0		-
Sample No.:	Measured [$\text{G}\Omega$]	Insulation resistance X A [$\text{M}\Omega\cdot\text{m}^2$] #	-
17	6.03	40	P
Supplementary information: Size of module 2.79 [m^2]. ; # : Limit			





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A2.8	TABLE: Thermal cycling test MST 51a			P
Test Date [MM/DD/YYYY] start/end.....:	07/09/2024 to 08/24/2024			-
Total hours (200).....:	200			-
Applied current [A].....:	13.29			-
Sample No.:	Open circuits (yes/no)			-
18	No			P
19	No			P

Supplementary information: NIL

A2.8	TABLE: Visual Inspection MST 01 (after Thermal cycling test MST 51a)			P
Sample No.:	Nature and position of findings			-
18	No visual defect			P
1919	No visual defect			P

Supplementary information: NIL

A2.8	TABLE: Dielectric withstand test - MST 16 (after Thermal cycling test MST 51a)			P
Maximum system voltage [V _{DC}].....:	1500			-
Test voltage applied V _{TEST} [V _{DC}].....:	8000V for 1min/1500 V for 2min			-
Module area A [m ²].....:	2.79			-
Sample No.:	Dielectric breakdown	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance X A [MΩ.m ²] #	-
18	[X]	10.47	40	P
19	[X]	8.85	40	P

Supplementary information: [X]: No breakdown occurred. ; #: Limit

A2.9	TABLE: Dielectric withstand test - MST 16 (Before Bypass diode thermal test MST 25)			P
Maximum system voltage [V _{DC}].....:	1500			-
Test voltage applied V _{TEST} [V _{DC}].....:	8000V for 1min/1500V for 2min			-
Module area A [m ²].....:	2.79			-
Sample No.:	Dielectric breakdown	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance X A [MΩ.m ²] #	-
21	[X]	11.62	40	P

Supplementary information: [X]: No breakdown occurred. ; #: Limit





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A2.9	TABLE: Bypass diode thermal test MST 25			P
Sample No.:	21			-
Test Date [MM/DD/YYYY] start/end.....:	07/16/2024			-
Module temperature [°C].....:	75±5			-
Number of diodes in junction box.....:	3			-
Diode manufacturer.....:	GENX PV INDIA PRIVATE LIMITED.			-
Diode type designation.....:	MK5045			-
Max. permissible junction temperature Tjmax [°C] (According to diode datasheet).....:	200			-
	Diode 1	Diode 2	Diode 3	-
Current flow applied [A].....:	14.08	1408	14.08	-
Max. diode surface temperature [°C] a or b.....:	131.8	132.5	131.2	-
Voltage drop [V].....:	0.41	0.38	0.45	-
Power dissipation [W].....:	5.77	5.35	6.34	-
Thermal resistance junction to leads (RTHJL)/to case (RTHJC) [K/W] (according to datasheet).....:	2.0	2.0	2.0	-
Calculated max. junction temperature Tjcalc [°C] a or b.....:	143.35	143.20	143.87	-
Tjcalc < Tjmax (test passed)? yes/no.....:	Yes	Yes	Yes	P
Current flow (1.25*Isc) [A].....:	17.60	17.60	17.60	-
Max. diode surface temperature [°C] a or b.....:	148.21	148.08	148.75	P
Supplementary information: NIL				
A2.9	TABLE: Visual Inspection MST 01 (after Bypass diode thermal test MST 25)			P
Sample No.:	Nature and position of findings			-
21	No visual defect			P
Supplementary information: NIL				
A2.9	TABLE: Dielectric withstand test - MST 16 (after Bypass diode thermal test MST 25)			P
	Maximum system voltage [V _{DC}].....:	1500		-
	Test voltage applied V _{TEST} [V _{DC}].....:	8000V for 1min/1500V for 2min		-
	Module area A [m ²].....:	2.79		-
Sample No.:	Dielectric breakdown	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance X A [MΩ.m ²] #	-
21	[X]	10.98	40	P
Supplementary information: [X]: No breakdown occurred. ; #: Limit				
A2.9	TABLE: Wet leakage current test MST 17 (after Bypass diode thermal test MST 25)			P
Test Date [MM/DD/YYYY] start/end.....:	07/16/2024			-
Test voltage applied [V].....:	1500			-
Solution resistivity [Ω cm].....:	< 3500 Ωcm at 22 ± 3°C	2498		-
Surface tension [Nm ⁻¹].....:	< 0.03 Nm ⁻¹ at 22 ± 3°C	-		-
Solution temperature [°C].....:	23.0			-
Sample No.:	Measured [GΩ]	Insulation resistance X A [MΩ.m ²] #		-
21	7.54	40		P
Supplementary information: Size of module 2.79 [m ²]. ; #: Limit				





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A2.10	TABLE: Hot-spot endurance test MST 22		P
Sample No.:	21		-
Test Date [MM/DD/YYYY] start/end.....:	07/17/2024		-
Cell interconnection circuit.....:	[] S	[X] SP	[] SPS
Module temperature at thermal equilibrium [°C].....:	53.9		-
Determination of worse case cell			-
Maximum measured cell temperature in 5 hours [°C]	77.5		-
Shading rate [%]	100		-
Supplementary information: NIL			

A2.10	TABLE: Hot-spot endurance test MST 22		P
Sample No.:	26		-
Test Date [MM/DD/YYYY] start/end.....:	07/17/2024		-
Cell interconnection circuit.....:	[] S	[X] SP	[] SPS
Module temperature at thermal equilibrium [°C].....:	56.8		-
Determination of worse case cell			-
Maximum measured cell temperature in 5 hours [°C]	76.9		-
Shading rate [%]	100		-
Supplementary information: NIL			

A2.10	TABLE: Visual Inspection MST 01 (after Hot-spot endurance test MST 22)		P
Sample No.:	Nature and position of findings		-
21	No visual defect		P
26	No visual defect		P
Supplementary information: NIL			

A2.10	TABLE: Dielectric withstand test - MST 16 (after Hot-spot endurance test MST 22)			P
	Maximum system voltage [V _{DC}].....:	1500		-
	Test voltage applied V _{TEST} [V _{DC}].....:	8000 for 1min/1500V for 2min		-
	Module area A [m ²].....:	2.79		-
Sample No.:	Dielectric breakdown	Insulation resistance at V _{TEST} [GΩ]	Insulation resistance X A [MΩ.m ²] #	-
21	[X]	10.13	40	P
26	[X]	11.27	40	P
Supplementary information: [X]: No breakdown occurred. ; #: Limit				

A2.10	TABLE: Wet leakage current test MST 17 (after Hot-spot endurance test MST 22)			P
	Test Date [MM/DD/YYYY] start/end.....:	07/17/2024		-
	Test voltage applied [V].....:	1500		-
	Solution resistivity [Ω cm].....:	< 3500 Ωcm at 22 ± 3°C	2492	-
	Surface tension [Nm ⁻¹].....:	< 0.03 Nm ⁻¹ at 22 ± 3°C	-	-
	Solution temperature [°C].....:	22.8		-
Sample No.:	Measured [GΩ]	Insulation resistance X A [MΩ.m ²] #		-
21	6.89	40		P
26	7.14	40		P
Supplementary information: Size of module 2.79 [m ²]. ; #: Limit				





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A2.10	TABLE: Visual Inspection MST 01		P
Sample No.:	Nature and position of findings		-
15	No visual defect		P
16	No visual defect		P
17	No visual defect		P
18	No visual defect		P
19	No visual defect		P
20	No visual defect		P
21	No visual defect		P
22	No visual defect		P
23	No visual defect		P
24	No visual defect		P
25	No visual defect		P
26	No visual defect		P
Supplementary information: NIL			





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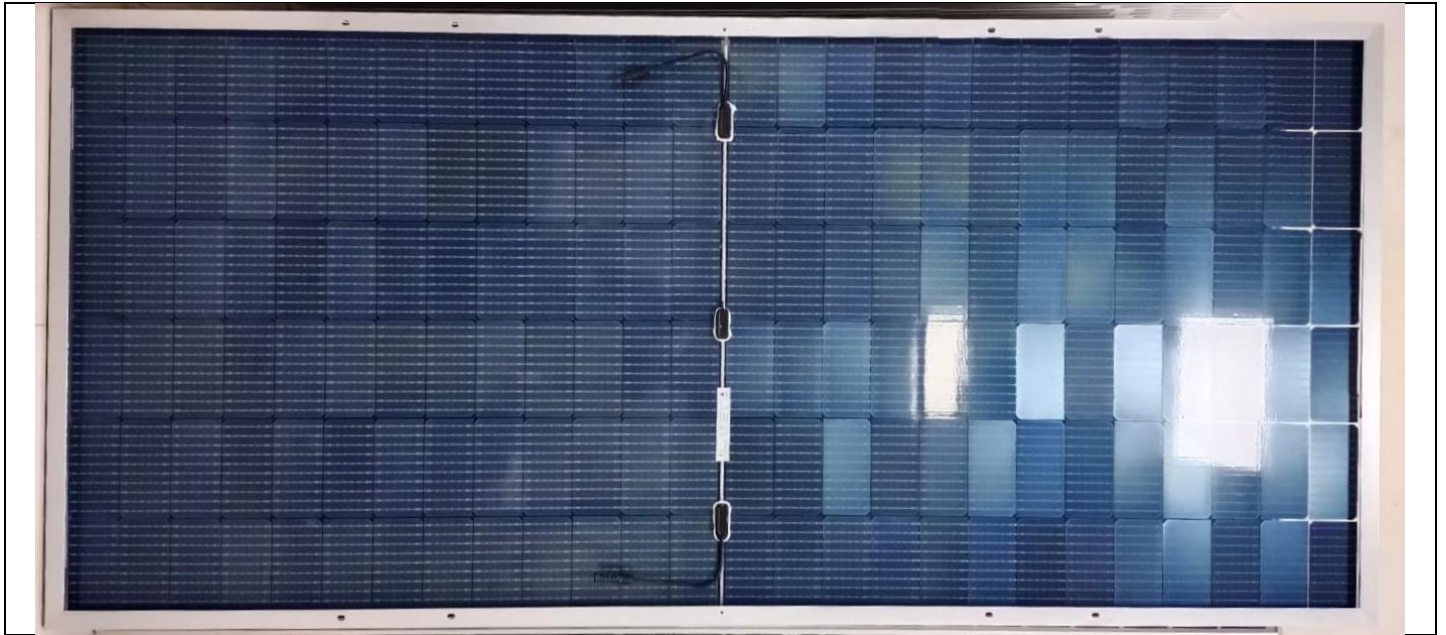
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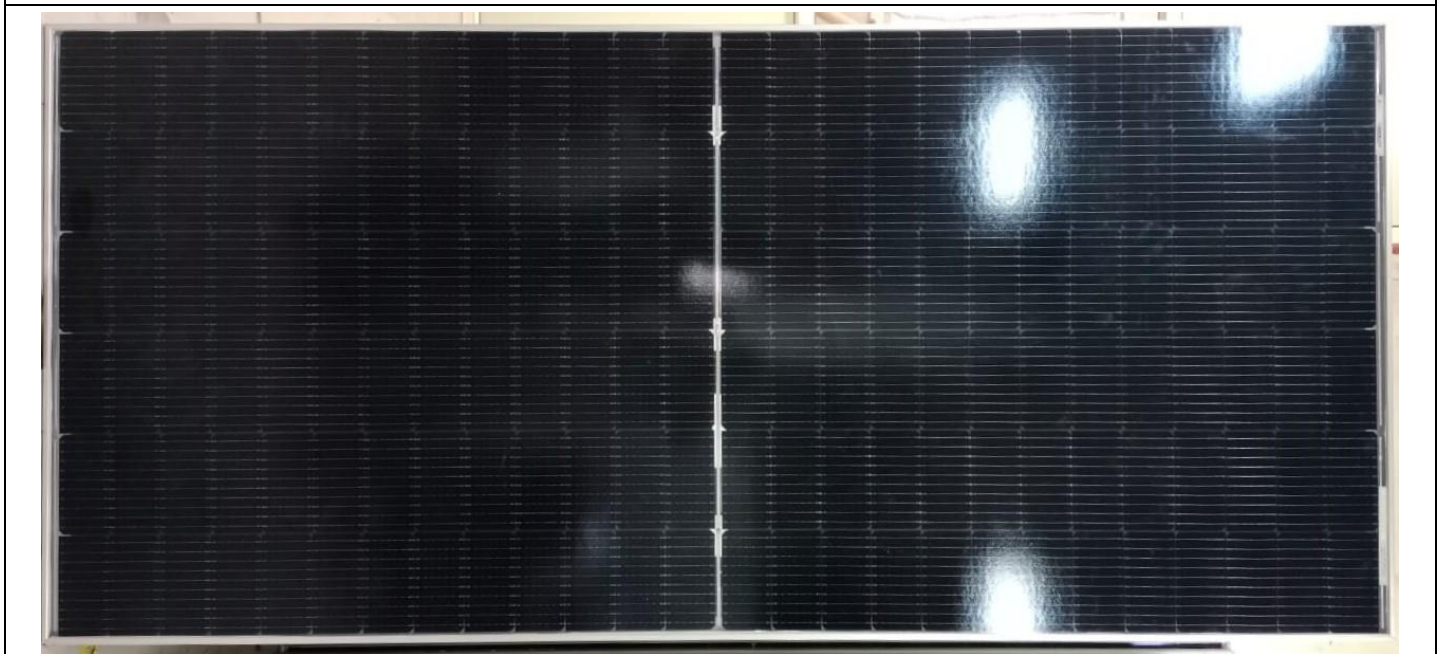
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ANNEX 3: PHOTOGRAPHS OF EUT



Rear view



Front view





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Junction Box closed view



Junction Box opened view



Negative Connector



Positive Connector





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ANNEX 4: SPECIFICATION OF PV MODULES

Model	System Voltage (V)	Electrical Rating					Fuse Rating (A)	Dimension			Total no. of cells (Half cut cells) (no.)	No of cells per by bypass diode (no.)
		Voc (V)	Vm (V)	Isc (A)	Im (A)	Pm (W)		L (mm)	W (mm)	H (mm)		
ISEN600-Bi (Representative Model)	1500	53.50	45.20	14.08	13.29	600	25	2464	1134	35	156	52
ISEN595-Bi	1500	53.40	45.00	14.01	13.23	595	25	2464	1134	35	156	52
ISEN590-Bi	1500	53.30	44.80	13.94	13.18	590	25	2464	1134	35	156	52
ISEN585-Bi	1500	53.20	44.60	13.87	13.12	585	25	2464	1134	35	156	52
ISEN580-Bi	1500	53.10	44.40	13.79	13.07	580	25	2464	1134	35	156	52
ISEN575-Bi	1500	53.00	44.20	13.69	13.02	575	25	2464	1134	35	156	52
ISEN570-Bi	1500	52.90	44.00	13.60	12.96	570	25	2464	1134	35	156	52
ISEN565-Bi	1500	52.80	43.80	13.55	12.91	565	25	2464	1134	35	156	52
ISEN560-Bi	1500	52.70	43.60	13.49	12.85	560	25	2464	1134	35	156	52
ISEN555-Bi	1500	49.75	42.12	14.02	13.18	555	25	2278	1134	35	144	48
ISEN550-Bi	1500	49.60	41.97	13.98	13.11	550	25	2278	1134	35	144	48
ISEN545-Bi	1500	49.45	41.81	13.93	13.04	545	25	2278	1134	35	144	48
ISEN540-Bi	1500	49.30	41.65	13.86	12.97	540	25	2278	1134	35	144	48
ISEN535-Bi	1500	49.15	41.47	13.79	12.91	535	25	2278	1134	35	144	48
ISEN530-Bi	1500	49.00	41.32	13.72	12.83	530	25	2278	1134	35	144	48
ISEN525-Bi	1500	48.85	41.16	13.65	12.76	525	25	2278	1134	35	144	48
ISEN520-Bi	1500	48.70	41.00	13.58	12.69	520	25	2278	1134	35	144	48
ISEN505-Bi	1500	45.54	38.53	13.98	13.11	505	25	2094	1134	35	132	44
ISEN500-Bi	1500	45.39	38.38	13.93	13.04	500	25	2094	1134	35	132	44
ISEN495-Bi	1500	45.24	38.22	13.86	12.97	495	25	2094	1134	35	132	44
ISEN490-Bi	1500	45.09	38.02	13.79	12.91	490	25	2094	1134	35	132	44
ISEN485-Bi	1500	44.94	37.90	13.72	12.81	485	25	2094	1134	35	132	44
ISEN480-Bi	1500	44.75	37.78	13.65	12.71	480	25	2094	1134	35	132	44
ISEN460-Bi	1500	41.48	34.18	14.01	13.47	460	25	1908	1134	35	120	40
ISEN455-Bi	1500	41.33	34.06	13.93	13.36	455	25	1908	1134	35	120	40
ISEN450-Bi	1500	41.18	33.95	13.85	13.26	450	25	1908	1134	35	120	40
ISEN445-Bi	1500	41.10	33.84	13.79	13.16	445	25	1908	1134	35	120	40
ISEN440-Bi	1500	41.02	33.72	13.73	13.05	440	25	1908	1134	35	120	40
ISEN435-Bi	1500	40.91	33.61	13.62	12.95	435	25	1908	1134	35	120	40
ISEN430-Bi	1500	40.79	33.51	13.51	12.84	430	25	1908	1134	35	120	40
ISEN425-Bi	1500	40.75	33.46	13.46	12.71	425	25	1908	1134	35	120	40
ISEN420-Bi	1500	40.71	33.42	13.42	12.57	420	25	1908	1134	35	120	40
ISEN410-Bi	1500	37.21	31.52	13.82	13.01	410	25	1722	1134	35	108	36
ISEN405-Bi	1500	37.06	31.36	13.75	12.92	405	25	1722	1134	35	108	36
ISEN400-Bi	1500	36.91	31.20	13.68	12.83	400	25	1722	1134	35	108	36





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ISEN395-Bi	1500	36.76	31.04	13.61	12.73	395	25	1722	1134	35	108	36
ISEN390-Bi	1500	36.61	30.88	13.54	12.63	390	25	1722	1134	35	108	36
ISEN385-Bi	1500	36.46	30.72	13.47	12.54	385	25	1722	1134	35	108	36
ISEN380-Bi	1500	36.31	30.56	13.40	12.44	380	25	1722	1134	35	108	36

..... End of report

